CAROLINA planning

Civic Meaning:
The Role of Place, Typology and Design Values in Urbanism
By Linda Groat

David Godschalk Examines Coastal Planning in North Carolina • Update on Recovery Efforts Following Hurricane Floyd • Greening of Industry: Sustainability and Local Economic Development • Urban Boundaries and Mass Transit: A Lesson for Atlanta?

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From the Editors:

The broad range of concepts addressed in this issue of *Carolina Planning* demonstrates the interdisciplinary nature of the field of city planning—topics discussed include coastal zone management, urban design, sustainability, economic development, and transportation. The articles tackle concepts that both practicing planners and academics have had difficulty transitioning from the realm of theoretical consideration to practical application. In *Civic Meaning: The Role of Place, Typology and Design Values in Urbanism*, Linda N. Groat proposes how urban designers and planners might better manifest the elusive concept of sense of place in the built environment, thereby cultivating a civic meaning in our urban spaces. In *Sustainability and Local Economic Development: Can Regions 'Learn' to Become Sustainable?*, Saeed Parto discusses bridging the gap between the seemingly disparate aims of economic development practices and sustainability.

In addition to the feature articles, this issue of *Carolina Planning* includes a book review by Deborah M. Markley on *Understanding Local Economic Development* by Edward J. Feser and Emil E. Malizia, professors of City and Regional Planning at the University of North Carolina at Chapel Hill. Moreover, as a part of the Planner's Digest section we have included an update on recovery efforts in the aftermath of Hurricane Floyd. Coupled with David R. Godschalk's article *Progress Report on 'Charting a Course for Our Coast': Not All Smooth Sailing*, the brief update on hurricane recovery serves as a precursor to our upcoming Summer 2000 issue that, in response to many requests, will focus exclusively on coastal zone management and hazard mitigation. We are currently soliciting articles for this upcoming issue, as well as articles, opinion pieces and book reviews for future issues.

Editors
Elizabeth Federico
Philip Hervey
Laurence Lewis
Robin Zimbler

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Carolina Planning welcomes comments, suggestions and submissions. Mail to:
Carolina Planning UNC-Chapel Hill CB#3140,
Chapel Hill, NC 27599-3140
Phone: (919) 962-4783
E-mail: carplan@unc.edu

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A street in Kentlands, Md. (top), and a suburban development.
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Carolina Planning is accepting articles for the Summer 2000 and Winter 2001 issues. Our journal focuses on topics relevant to practicing planners in the Southeast. We are particularly interested in articles on Transportation and Historic Preservation for the upcoming issue.

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Manuscripts should be up to 25 typed, double-spaced pages (approximately 7,500 words). Please submit two paper copies and one copy on 3.5" diskette in WordPerfect, Microsoft Word, or ASCII text. Citations should follow the author-date system in the *Chicago Manual of Style*, with endnotes used for explanatory text. Legal articles may use Bluebook format. Tables and graphics should be camera ready. Please include the author's name, address, telephone number, and email address, along with a 2-3 sentence biographical sketch. Carolina Planning reserves the right to edit articles accepted for publication, subject to author's approval.

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Contact Information
Carolina Planning
Department of City and Regional Planning CB#3140
University of North Carolina
Chapel Hill, NC 27599
(919) 962-4783
E-mail: carplan@unc.edu

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Planner's Digest

Recovery Efforts in the Wake of Hurricane Floyd

Robin Zimbler

The past hurricane season devastated much of Eastern North Carolina, killing 51 people, causing an estimated $531 million in crop losses, and damaging over 57,000 dwellings. Following Hurricanes Dennis, Floyd and Irene, 66 counties in North Carolina designated as disaster areas by the federal government face a long recovery process as many residents either rebuild or relocate to higher ground. Local, state and federal policy-makers face the challenge of directing recovery efforts in order to not only restore areas to pre-disaster conditions, but also make communities more disaster-resistant in the future.

Federal and State Disaster-Relief Aid

As of mid-December North Carolina had received $2.2 billion in federal aid. Earlier that month Gov. Jim Hunt announced the state's $830 million Floyd relief plan which was, in turn, approved by the House in mid-December during a special session. The only major revision to Hunt's plan was to eliminate $4.5 million proposed to clean-up eight junkyards along the Neuse River. The state relief plan supplements federal buyout money and provides aid to homeowners, small businesses and agriculture. Moreover, state funds will help pay for cleaning up environmental damage suffered as a result of the torrential rains.

The major criticism of the state's package concerns the planned spending of approximately $350 million earmarked for housing, the majority of which goes to homeowners, with little aid for renters. State officials plan to return to Washington to ask for additional aid to repair rental housing in damaged areas, buy houses and apartments in flood zones and construct new homes. In addition, they plan to request funding to move hog waste lagoons from floodplains. It is estimated that state officials will ask for upwards of $900 million in additional federal aid.

Governor Hunt's Floyd Relief Plan

The relief plan tightens the state budget in order to provide $830 million in aid, without temporarily increasing the sales tax or requiring a bond issue. The package proposes to use $504 million generated from both a one percent cut in state agencies' spending and delays in capital improvements programs already ordered by Hunt under emergency powers. It also draws upon $286 million from the emergency Rainy Day Fund and $40 million leftover from last year's budget. As a result of tightening state agencies' spending, state projects that are not in the building stage or have not already contracted out with a builder or developer have been shelved—including projects undertaken by the University of North Carolina, North Carolina Central University, the North Carolina Zoological Park, and the State Fairgrounds.

Fearing that such across-the-board budget cuts will delay necessary projects, legislators have advocated alternative methods to raise the funds, including State Treasurer Harlan Boyles's proposal for a voluntary check-off on tax returns for flood relief. The state funds supplement federal aid by offering grants to homeowners residing within the 100-year floodplain that choose to participate in the federal buyout

program. In addition, the redirected funds provide aid to households and residences outside the floodplain that do not qualify for existing federal loan programs, and partially compensate farmers for crop losses and damage to equipment. The funds also reimburse local governments for resulting property-tax losses and fund the monitoring of drinking water and wastewater treatment systems in affected areas.

Building Disaster-Resistant Communities

In recent months, communities affected by Hurricane Floyd have had to make difficult decisions about their future. Neighborhoods in both Kinston and Goldsboro have chosen to participate in the voluntary buyout program. Under the program, households located in participating neighborhoods will receive money, primarily from the federal government, equivalent to the equity in their current homes. The households should also expect to receive additional aid generated by the $830 million state relief package in order to buy a comparable home in another location. For example, 40 homes in the Neuse Circle neighborhood of Goldsboro will relocate to higher ground—the vacated land will be redeveloped into a suitable flood plain use such as a park or wetland.

Other communities such as Princeville, a historic town founded by freed slaves, elected to rebuild in their current location instead of participating in the buyout program. Hurricane Floyd ravaged the town of Princeville, destroying 850 of its 1,154 dwellings. Nearly half of the 2,100 residents of Princeville are elderly with strong emotional ties to the community and its heritage. The U.S. Army Corps of Engineers will rebuild the 34-year-old dike in Princeville to the 300-year floodplain level at an estimated cost of $5 million.

Local Hazard Mitigation Planning

As a result of the extensive destruction caused by Floyd, renewed pressure has been placed on communities to include proactive hazard mitigation measures in their day-to-day decision-making. Following Hurricane Fran in 1996, the N.C. Emergency Management Division awarded Hazard Mitigation Grant Program funds to 11 communities to help them develop and adopt local hazard mitigation plans. In the wake of Floyd, this effort will extend to other affected communities. In keeping with the program standards, the participating communities must do the following: identify and analyze all hazards that threaten the community, assess vulnerable properties and populations, assess local capabilities to implement various mitigation programs and policies, and identify and prioritize feasible mitigation opportunities. In the future, the existence of local hazard mitigation plans will prevent communities both from further loss of life and property caused by natural disasters and from having to make the difficult choice to either relocate or rebuild. CP

For current information on Hurricane Floyd recovery efforts please go to the FEMA web site at http://www.fema.gov/hu99/d1292

Robin Zimbler *is a master's degree candidate in City and Regional Planning at the University of North Carolina at Chapel Hill.*

Progress Report on *Charting a Course for Our Coast*: Not All Smooth Sailing

David R. Godschalk

This report discusses progress made during the past five years toward implementing the 1994 report of the North Carolina Coastal Futures Committee, as reviewed at the State of the Coast Summit held in Wilmington on October 8, 1999. It compares the recommendations from *Charting a Course for Our Coast* with accomplishments to date, pointing out some dangerous shoals.

Year of the Coast Marks Two Decades of Coastal Management

The 1994 National Conference on Innovations in Coastal Management, held in Wilmington, was an upbeat event. The conference was the culminating step in a well-publicized yearlong effort entitled *The Year of the Coast* that celebrated the 20th anniversary of the enactment of the 1974 North Carolina Coastal Area Management Act (CAMA). Those of us attending the conference believed the time had finally come to complete the actions necessary for an effective intergovernmental coastal management program, two decades after the adoption of the original cautious and limited implementation approach.

The printed conference program began with optimistic quotes from state leaders (NC Coastal Futures Committee 1994b). Governor James Hunt said: "We have a moral responsibility to do the right thing–for our people and for the land." The governor gave a rousing speech about the need for wise land use planning, hearkening back to his father's work with the land as an agricultural agent.

Jonathan Howes, then Secretary of the NC Department of Environment, Health and Natural Resources, stated: "We must plan now to ensure a sound future for coastal North Carolina. We must learn from both our mistakes and our triumphs to plan for tomorrow." Richardson Preyer, former congressman, federal judge, and chair of the Coastal Futures Committee, stated: "Protecting our coast means protecting our rich and diverse cultural and environmental heritage. If we work together, we can sustain this wonderful resource for future generations."

A number of distinguished conference speakers addressed topics such as Putting Science to Work in Coastal Management, The U.S. Congress and Our Coasts, Innovative State Approaches to Coastal Zone Management, Sustainable Development Through Quality Growth Management, Coastal Water Quality Protection, Planning for the Big Storm: Staying Out of Harm's Way, and Program Implementation and Enforcement. It seemed that North Carolina coastal management was not only going to shoulder its full responsibilities, but also was poised to regain its position as a national leader in innovative coastal planning.

Charting a Course for Our Coast

The high point of the 1994 conference was the presentation to the governor of the Final Report of the N.C. Coastal Futures Committee--*Charting a Course for Our Coast* (NC Coastal Futures Committee 1994a). The 15-member committee was charged by the governor to review CAMA's accomplishments and shortcomings, and

***David R. Godschalk** is the Stephen Baxter Professor of City and Regional Planning at the University of North Carolina at Chapel Hill.*

chart a new course of action for the next 20 years and beyond. The committee's report acknowledges the achievements under the 1974 CAMA, including banning sea walls and other beach-destroying structures, protecting ecological systems, preserving public beach access, and adopting land use plans by all local governments in the 20 coastal counties.

However, the 1994 report points out that explosive population growth and unexpected environmental dangers continue to threaten the coast. It describes the closing of shellfish waters and the damage to wetlands, maritime forests and fish habitats. The report also notes that the quality of land use planning has been uneven, while local input can be lost because CAMA does not require that adopted plans be implemented. The report calls for a plan that will protect the region's natural resources, accommodate sustainable development, and preserve its character and natural beauty.

The report's new vision offers approximately 200 recommendations to strengthen land use planning, protect water quality and public trust rights, conserve natural areas, improve CAMA regulations, promote environmental education, and support economic development while addressing environmental protection.

Among the most important recommendations identified by the report drafters are:

- Strengthening land use planning, including providing adequate technical assistance and financial support and basing local eligibility for CAMA development permits and state funding for water and sewer projects, highway improvements, community development and tourism on the successful implementation of land use plans by local governments.
- Planning on a regional basis for water quality protection, economic development, transportation, and waste disposal, dealing with entire river basins and improving water quality standards to protect shellfish beds and fish nurseries from shoreline development.
- Analyzing cumulative and secondary impacts of growth on communities, water quality and water supply, in local land use plans.
- Supporting environmentally sound development, including aquaculture, mariculture and ecotourism.
- Strengthening and enforcing laws to control nonpoint source pollution, such as runoff from cities and farms.
- Applying a special classification, Use Restoration Waters, to areas such as the South River where chronic pollution problems exist.
- Expanding the coastal reserve program to conserve environmental systems such as riverine and estuarine fish nurseries and maritime forests, and securing permanent funding for beach access, coastal reserve, and other acquisition programs.
- Restoring fish habitats through improved land use planning, stricter water quality controls, mapping of aquatic resources, and limiting damaging activities such as fishing, boating, and dredging.
- Enacting a freshwater wetlands protection statute, similar to the saltwater wetlands statute, that provides conservation incentives to private landowners.
- Simplifying the CAMA permit process to make it more user-friendly, and raising fees for major development to cover administrative costs.
- Developing a comprehensive environmental education and outreach program that begins in pre-school and goes through college and beyond.

To reach its vision, the report calls for strong commitment and leadership from citizens and public officials. While it does not attempt to cost out its recommendations, the report states that substantial new funding for state environmental programs will be required, and urges that new revenue sources be sought. The report leaves no doubt that its drafters believe that the time has come to move forward well beyond the activities of the CAMA program's first two decades.

Following up in 1995, Governor Hunt announced his Coastal Agenda, based on recommendations from the Coastal Futures Report, as well as the Albemarle-Pamlico Estuarine Study. The agenda set goals of protecting and improving water quality,

protecting and restoring natural areas and vital habitats, strengthening state and local partnership to improve coastal management, and protecting and restoring marine fisheries.

Responses to the Coastal Futures Report

County Commissioners Resolution

The first response to the Coastal Futures report signaled that there would not be unanimous support for its recommendations. The North Carolina Association of County Commissioners passed a resolution objecting to the report's draft recommendations in August 1994, before the final report was presented in September. Calling them "serious intrusions on the traditional and constitutional rights of local governments to govern," the Association resolution objected to provisions that required reporting of participation by local elected officials in planning; inclusion of implementation, including zoning, in land use plans; performance audits to determine adequacy of implementation; and tying of eligibility for growth-related state and federal grants to plan implementation. It demanded the rejection of any recommendations that allow the state to "intrude" in local land use planning, give state employees the power to withhold state or federal funding based on implementation, and permit the state to impose mandatory zoning on select counties.

The County Commissioners' resolution showed that, despite 20 years of efforts by the state to collaborate with the coastal local governments, there remained a perception of "us versus them" that threatened to frustrate effective land use planning and implementation. The provisions that raised the ire of the County Commissioners are not radical. The idea that zoning should be tied to a comprehensive plan has been accepted across the country for fifty years.[1] The idea that plans should be implemented, rather than being paper exercises, is a requirement of state law in many states, as is the tying of state grants to adequacy of local plans. However, the exercise of local land use planning in the coastal area of North Carolina appears to be viewed as an onerous state mandate, rather than an opportunity to develop and carry forward a shared local vision about the future of the community.

State of the Coast Summit

Five years after the 1994 Coastal Futures Committee issued its report, the North Carolina Coastal Federation brought coastal interest groups together to assess progress made toward the report's goals. It should not be surprising that the assessment of progress by speakers at the October 1999 State of the Coast Summit in Wilmington was not all that encouraging–for either local land use planning or for state agency performance. One after another, the speakers pointed out the environmental and planning failures of recent years.

The North Carolina Coastal Federation presented their 1999 *State of the Coast* report, which assigned the Hunt Administration a grade of D+ and called on the governor to make good on his Coastal Agenda of 1995 and other long promised coastal reforms. It bemoaned the relaxation of environmental standards to permit the construction of the Nucor steel mill on the Chowan River, and the six month delay in enforcement of wetland protection rules (due to lack of state staff) that allowed the 1998-99 ditching of 10,000 acres of coastal wetlands. At the same time, the report also acknowledged positive progress in the Coastal Resource Commission's moratorium on approval of CAMA land use plans to give time to study ways to strengthen the planning process, and the proposed non-point source rules for the Tar-Pamlico River Basin.

The conference program listed a "reunion" of the Coastal Futures Committee, suggesting that there would be an active debate and discussion of progress made toward carrying out its recommendations. Unfortunately, no formal discussion took place. Instead, the committee members made short comments, there was a brief appearance by a staff member from the Department of Environment and Natural Resources (DENR), and a question and answer period was held where the Committee members responded to audience queries.

Audience members asked why many recommendations had not been implemented. Were local land use plans now addressing carrying capacity and cumulative and secondary impacts of growth? Were local land use

ordinances now required to be consistent with approved CAMA plans? Were state and federal grants now tied to adoption of land use plans and implementation programs that comply with minimum Coastal Resource Commission (CRC) standards? Few answers were forthcoming.

DCM's Progress Report

Rather than debating progress at the Coastal Summit, the NC Division of Coastal Management (DCM) distributed a printed report: *A Progress Report on the Coastal Futures Committee's Recommendations for Coastal Management* (NC DCM 1999). The report states that many recommendations have been enacted successfully or are currently being reviewed by the Coastal Resources Commission. Using a Recommendation/Result format, the DCM report reviews systematically by topic the actions taken by the state since 1994, and appends a list of 39 recommendations that have not yet been accomplished. Its tone is positive and its review shows that many recommendations have been followed.

Since 1995, another planning position and additional state funding for local planning were secured and GIS database packages of planning information including watershed boundaries were issued. Also, the land use planning guidelines were revised to require analysis of community services and inclusion of implementation strategies and time lines in land use plans. DENR now offers bonus points toward wastewater treatment plant funding for acceptable land use plans and those that list implementation strategies. The CRC initiated a one-year land use plan moratorium, and appointed a Land Use Planning Review Team in 1998 to suggest improvements in the planning guidelines. The Team will consider the Coastal Futures recommendations and report to the CRC in mid-2000.

Setting a Collaborative Course for Coastal Planning

My own estimate of progress toward achieving the primary goal of the Coastal Futures report–a sustainable coastal region–is not as sanguine as that of the Division of Coastal Management's progress report. Especially in terms of land use planning, serious progress is still hard to discern.

On the plus side, as the DCM progress report points out, are a number of useful actions. These include the increase in technical and financial assistance for local planning, the provision of GIS database packages, the requirement that implementation strategies and time lines be included in plans, the bonus points for acceptable land use plans and implementation strategies, and the funding for regional planning projects.

On the minus side, it does not appear that clear guidelines have been given for conducting carrying capacity analyses or cumulative impact assessments. The DCM report states that the ball has been passed to the Land Use Plan Review Team to consider the level of analysis that should be conducted by local governments. The progress report also acknowledges that no progress has been made toward making eligibility for funding contingent upon involvement of elected officials, or toward requiring that all local ordinances be consistent with the local land use plan.

However, the largest obstacle to planning for a sustainable coastal region–a crisis of confidence in the core concept of *collaboration* between the state and the coastal local governments–appears to remain. Coastal planners tell me that the state land use planning guidelines are a patchwork of hard to understand "shalls" and "shoulds." It is not clear that the bonus points approach will generate better plans, as both local and state planners are frustrated by the system. The two year moratorium on land use plans signals that the old approach had not worked, but the outlines of a new workable approach have yet to emerge from the Land Use Plan Review Team. Meanwhile, the state's own actions appear to be at odds with a sustainable future, leaving us to wonder what happened to the 1994 state commitment to "do the right thing."[2]

What is needed at this point to turn land use planning from an unpopular state mandate to a positive collaborative activity. Planning needs to be seen as a way for the local communities to define and realize their own visions, while contributing to the overall goal of a sustainable

coastal region and being supported by the actions of state agencies.[3] That will not be an easy task, given the history of intergovernmental relationships to date. But if we don't figure out how to do it, the course for our coast may well be heading for the rocks. CP

Notes

1. However, the North Carolina courts have not held that zoning needs to conform to a master plan, and the original CAMA legislation did not include this requirement.

2. Some attribute the decrease in state efforts to reform CAMA to a change in the political winds, when one of the potential reform leaders, Representative Karen Gottovi of Wilmington, was defeated for re-election, and the Republicans took control of the state House after the Coastal Futures Committee report had been issued.

3. For some of my own thoughts on how to accomplish this turnaround, see my essay, "Coastal North Carolina: Planning for a Sustainable Future," in *Eye of the Storm: Essays in the Aftermath* (Coastal Carolina Press, forthcoming).

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Civic Meaning: The Role of Place, Typology and Design Values in Urbanism

Linda N. Groat

What is civic meaning? How might such meaning be expressed and conveyed through urban design? Are some urban design strategies better than others in conveying civic meaning? These are the questions I was asked to address as part of the University of North Carolina's spring 1999 symposium on "Traditional Urbanism Reconsidered."

I approach these questions from the perspective of an academic researcher who has been investigating the topic of 'environmental meaning' for more than two decades, through empirical studies and theoretical analyses. Environmental meaning, as I and other researchers have framed it, highlights the importance and complexity of the processes by which people apprehend and construct meaning in their physical environments, from small to large scale, including both built and natural environments. Within this larger framework, the notion of civic meaning raises the question of how the urban or town scale environment might convey a sense of citizenship, civic engagement, and community cohesion.

Given the theme of the symposium, the implicit question being posed is whether traditional urbanism and/or New Urbanism are likely to be more successful than Modernist and typical suburban developments in engendering civic meaning. This of course is a complex question, one that defies a simple answer. None of the urban design strategies – traditional, Modernist, suburban, or New Urbanist – is by any means monolithic. The range of examples is endless, the quality of execution completely variable. Nevertheless, it is vitally important to address the question because the quality of our experiences in neighborhoods and cities depends on it.

In this article, I begin from the premise that 'civic meaning' is a critical, but often missing, ingredient in our lives as citizens in our communities. Achieving authentic civic meaning requires that it be embedded in our social practices – especially the processes enacted for making and sustaining communities, in the actual physical form of our communities, and even in our fundamental values. As a prelude to the discussion of the extent to which various forms of urban design (e.g. typical suburban development or New Urbanist) are capable of engendering civic meaning, three underlying principles will be examined:

1) the model of place experience,
2) the notion of typology as means by which people interpret physical form, and
3) the concept of the designer-as-cultivator, based on an understanding of organizational and environmental values.

Three Underlying Principles

A Model of Place: The Role of Physical Form

The concept of place is one that is common to design practice and academic research in environmental meaning; its great strength as a concept is that ubiquity. But with this advantage comes a cost. Different segments of the literature on place tend to rely on different understandings of the concept, and this of course can lead to significant ambiguities and confusion.

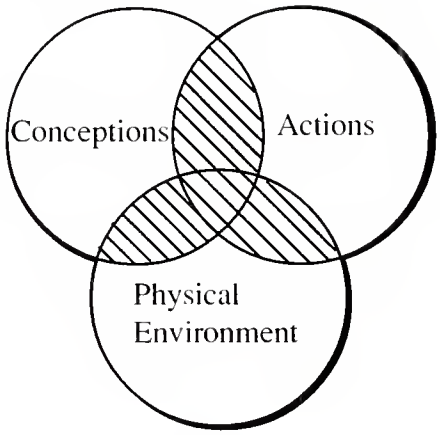
***Linda N. Groat** is professor of architecture at University of Michigan. Her research on environmental meaning has been widely published in academic and professional journals.*

A major distinction within the place literature is between those who would use the term 'place' to suggest a very positively-experienced setting versus those who would use the term more analytically (Groat 1995; Sime 1995). The former are often practitioners who might describe the positive quality of a particular environment as conveying a 'sense of place.' Similarly, many design theorists (e.g. Norberg Schulz 1980), as well as humanistic geographers (e.g. Relph 1976; Tuan 1977) who identify themselves with a phenomenological perspective, ascribe a positive valence to 'place,' frequently contrasting it to 'placelessness.' The latter term commonly describes the sort of strip commercial developments and suburban residential subdivisions that can be found from coast to coast, and often around the globe. Sime (1995) among others, critiques the work of these authors for their largely idiosyncratic and subjective analyses of what constitutes place, with virtually no evidence drawn from the people who live in or experience those places.

On the other hand, some researchers – more often from the empirical traditions of the social sciences – have tended to use 'place' in more analytical terms, such that any place may be construed in positive and/or negative terms. Within this subset of the literature, the environmental psychologist David Canter has offered the most developed and theoretically refined analysis of place. Initially presented in his book, *The Psychology of Place* (Canter 1977), he has written extensively on the place model in a variety of academic papers and articles since (e.g. Canter 1986; 1988; 1991).

Canter (1977) draws on a broad array of empirically based research to propose a three-part definition of place. In his view, place can be represented as the intersection, and/or association, of three constituent elements: actions, conceptions (or meaning), and the physical environment (see Fig. 1). In subsequent elaborations of this model, Canter argues that place can be defined in terms of the "shared aspects of experience" (Canter 1986:218), much of which is socially defined and constructed in the social roles and rules of a setting. Sime, in his review of the place literature (1995), recognizes

Figure 1. Model of Place



the value of Canter's emphasis on the shared aspect of the experience of place from the users' perspective, but he nevertheless criticizes Canter for neglecting a detailed analysis of the physical attributes of a setting which designers must manipulate.

Despite the vastly different orientations of Canter's analytical perspective on 'place' and Relph's more value-laden approach, both of these authors propose three-part models of place that are described in similar terms. Relph (1976) labels these three components as "physical features or appearance, observable activities and functions, and meanings or symbols," as compared to Canter's "actions, conceptions, and the physical environment." The remarkable correspondence is significant because the concept of place as outlined by these two authors may serve to integrate the phenomenological approach with more empirically based research. Even more to the point, this three-part model can also elucidate the 'sense of place' that many design and planning practitioners seek to understand and strive to create in built form.

What, then, is the particular contribution of the place model to our discussion of civic meaning in urbanism? One implication is that, despite the tendency of many architects and urban designers to focus *primarily* on the physical attributes of urban sites, people's own activities and their habits of mind (conceptions) will necessarily play a major role in the "shared

aspects of experience" that constitute place. Similarly, despite the tendency of many planners and social scientists to focus *primarily* on the social processes of urbanism, the physical properties of the particular urban settings will inevitably either foster or constrain these social processes. In other words, the physical setting does not determine the nature of a place, nor is the physical setting simply determined by the other components of the place model. The particular physical features which characterize various urban design strategies (traditional, modernist, New Urbanist, etc.) can best be understood as 'enablers' of, not 'drivers' for, particular qualities of place.

Typology and Context: Understanding Designer and Lay Interpretations of Place

What then are the physical features that might be critical in people's experience of place? This has been the focus of much of the empirical research on environmental meaning. And while there are certainly a number of specific, detail-level features that have been identified in particular research studies – such as hierarchical ordering of facade features (e.g. Groat 1994) or centered entries and framed windows (e.g. Nasar and Devlin 1995) – two more complex features (typology and contextualism) seem particularly useful for understanding people's reactions to the urban environment.

The term typology in architectural design generally refers to the combination of functional and formal properties associated with common building types such as houses, schools, stores, museums, etc. Research on the general public's interpretations of meaning in architecture suggests that identification of building type is a fundamental reaction to unfamiliar buildings. For example, in research I conducted a number of years ago on people's reactions to various architectural styles across several building types, I found that the respondents' first reaction was almost invariably to try to categorize each building example into the most likely building type category (Groat and Canter 1979; Groat 1982). At face value, one might simply conclude that it would be preferable to design buildings to ensure that 'type' is easily identifiable, but more fine-grained analyses of the respondents' interpretations of particular buildings suggest otherwise. Rather, laypeople's reactions seem to suggest that if a building is interpreted as appropriate to its apparent purpose, then it has a good chance of being considered successful and appealing. In other words, absolute or correct identification of a building's type category may not be essential as long as the building *appears suitable* for one or more particular purposes. And this, of course, depends on the foundation of people's past experience of buildings of a given type.

Other researchers (e.g. Purcell 1986; Purcell and Nasar 1995) have tackled the question of people's response to a variety of buildings *within* a specific building type category, in this case housing. As an outcome of a decade or more of research, Purcell has refined a model of aesthetic evaluation based on the notion of 'prototypicality.' In this model, the most preferred buildings are those that represent either a small or negligible deviation from 'good' (the most typical) examples of single-family houses. Architects, on the other hand, tend to prefer houses they consider interesting, and the less typical of houses in general. In other words, laypeople (unlike designers and architects) tend to prefer houses that represent a relatively narrow range of design choices that can be seen as relatively typical of houses available to them.

In a similar vein, research I conducted on laypeople's preferences for designs of new buildings in older settings yielded results that seem consistent with the findings about prototypicality. In general, respondents preferred designs that were highly replicative – especially in the quality of facade details – of the older context (Groat 1988; Groat 1994). Building designs in which the architects replicated the site organization and massing of nearby buildings – but not the facade details – were generally not preferred. On the other hand, designs that substantially replicated facade details, though deviating somewhat from nearby site organization and massing, nevertheless were seen very positively. In addition, some Post-Modernist style designs in which facade details were highly articulated were often disliked. These anomalies

revealed the public's inclination to prefer pre-Modern compositional principles in which hierarchical ordering prevailed.[1]

What are the implications of these findings for civic meaning in urban settings? In general, there seems to be a preference among the lay public for buildings and districts that have an observable relationship to precedent (through the mechanism of typologies) and context (through visual similarity to valued building ensembles nearby). These research findings are consistent with other evidence that laypeople tend *not* to find positive meaning in Modernist-inspired buildings, as they intentionally eschew both precedent and contextual considerations. On the other hand, traditional urbanism, typical suburban development, and New Urbanist philosophy all, to varying degrees, make use of both precedent and context in their physical design. The similarities and differences in the use of precedent and context among specific urban design strategies will be addressed in greater detail in the second portion of this article.

Design Values in Practice: The Designer-as-Cultivator

In a series of articles and book chapters over the last several years I have argued that designing 'places' that foster people's sense of well-being (in the most robust sense of the term) requires that environmental planners understand their professional role to be that of a 'cultivator' (Groat 1992; 1993; in press). In defining this concept, I contrast it with two models that have been prevalent in the design literature over the last century or longer: the technician and the artist. Although various researchers have tended to use slightly different terminology to describe these two models (e.g. Gutman 1987; Crawford 1991; Cuff 1991), the authors' discussions of these models are essentially comparable. The designer-as-technician model has tended to emphasize the technical competence of the designer and his or her responsiveness to basic client needs, but also implicitly a more reactive mode of practice. On the other hand, the designer-as-artist model has tended to emphasize a more inspirational mode of practice and a persuasive orientation to client needs, but also a more isolationist mode of practice. Unfortunately, neither the technician nor the artist model sufficiently acknowledges the role of the designed environment as a cultural artifact. Instead, I would argue, what is needed is a model of the "designer-as-cultivator," a model more robust by virtue of its recognition of the socio-physical culture in which designed environments are inevitably embedded. Rather than taking the reactive stance of the technician, the cultivator is motivated to express both a personal and interpersonal understanding – both in his or her design process and the designed product. And instead of the isolationism of the artist, the cultivator is fully engaged in the broader perspective of community life.

One way to clarify the underlying values expressed through these models of design practice is to use a recently developed set of assessment tools for identifying individual and organizational values. In a recent book, organizational consultant Richard Barrett (1998) posits a seven-level framework for assessing the alignment of individual and organizational values. Briefly, Barrett builds on psychologist Abraham Maslow's well-known model of human needs (Maslow 1954) by compressing Maslow's hierarchy into the first four levels of his proposed model and by augmenting these with three additional levels.

In Barrett's model (Fig. 2), the first column describes these seven levels in terms of an individual's consciousness. The first level

Figure 2. Barrett's Seven Levels of Employee Consciousness and Organizational Consciousness[2]

Seven Levels of Employee Consciousness	Seven Levels of Organizational Consciousness		
Societal Service	Society	7	
Make a Difference	Community	6	Common Good
Meaning	Organization	5	
Transformation	Transformation	4	
Self-Esteem	Self-Esteem	3	Self-interest
Belonging	Belonging	2	
Security	Security	1	

represents security in terms of physical needs; next is the need for belonging, a need that is satisfied by meaningful attachments to people; and third, the need for self-esteem is fulfilled when we feel respected by people we care about. These first three levels have in common a basis in self-interest. The fourth level is transformation, realized through the achievement of personal growth, whereby the person begins to move beyond the self-interest of the first three levels. The next three levels of the model describe a focus on the common good. At the fifth level life becomes infused with meaning and we find a mission in our immediate family or organization; next, we seek to make a difference in our larger community; and finally, at the seventh level, there is a sense of connection with the whole of society.

The second column of Barrett's model shows the corresponding levels of consciousness for an organization, business or institution. At the lower levels, the organization is concerned first and foremost with financial and physical survival; secondly, with fostering the sense of belonging that comes with interpersonal relations that facilitate individuals' organizational roles; and thirdly, at the level of self-esteem, the organization is concerned primarily with being the most competitive, productive, cost-effective, etc. Next, at the transformational level, an organization would begin to shift from the perspective of self-interest to the common good. At this stage, the organization embarks on renewal and self-knowledge through the participation of all members. In the final levels of development, an organization would focus on internal connectedness by developing a positive culture that supports the fulfillment of its members; next, the focus would be on external relations with other people and organizations, as well as the immediate community; and finally, the seventh level represents a consciousness in service to society and the planet.

One of the most important features of Barrett's model is that the levels are conceived of as cumulative. Ideally, an individual or organization that truly achieves a level of societal consciousness can be expected to maintain values well distributed across all levels of the model. On the other hand, some individuals or groups may be almost entirely focused on the self-maintenance values of the first three levels, not having worked through the transformative stage to incorporate values of the common good. In some instances, a individual or group might espouse community and societal connections without having addressed sufficiently the values of transformation and internal connectedness, a situation which is likely to be fraught with inconsistencies and mixed messages.

For the purposes of this discussion of 'civic meaning' in urban environments, Barrett's model provides a compelling device for assessing the extent to which proposed urban design projects can support the collective values of citizens. For example, a well-intentioned park project for a local neighborhood might not be successful because the physical features represent recreational values that do not match those of the local residents. Or similarly, a development scheme proposed by a city planning department might embody values of a commercial/ industrial economic model not shared by major segments of the community.

In Fig. 3, I have added to Barrett's seven-level model to show the relationship between organizational values and both design values and physical design elements. Its purpose is to demonstrate how elements of the built and natural urban environment, can support the values of a community as it moves from a self-interested perspective towards a more holistic one. As we

Figure 3. Relationship of Seven Levels of Organizational Consciousness to Environmental Consciousness

Levels of Organizational Consciousness	Levels of Environmental Consciousness		
Society	Societal Con.*	7	
Community	Contextual Con.	6	Common Good
Organization	Internal Con.	5	
Transformation	Transformation	4	
Self-Esteem	Goal-Oriented	3	Self-interest
Belonging	Belonging	2	
Survival	Health & Safety	1	

*Short for Connectedness

will see, different environmental design goals are most relevant at different levels of the hierarchy. In other words, a successful outcome of an urban design project is unlikely to occur without a fundamental understanding of the neighborhood or town context of which it will play a vital part.

1. **Health and safety**. At the most basic level, a designed environment provides shelter and insures health and safety. This is the rationale for the licensing of architects, who are expected to be responsible for building designs that are structurally sound and satisfy applicable building codes. At the neighborhood, city, or regional scale, comparable health and safety issues include: water supply and sewage treatment, provisions for utility lines and hook-ups, restrictions on flood plain development, and the like.

2. **Belonging**. Any designed environment must foster smooth interpersonal relationships that support the basic functioning of families, organizations, neighborhoods, and communities. In urban and suburban settings, most residential and commercial developments satisfy these basic needs. A well-known residential example to illustrate this point would be the post-World War II Levittown developments. This basic box single-family housing enabled many young post-war families to get on their feet; and similar housing developments across the US served as building blocks for emerging suburban communities.

3. **Goal-oriented quality**. This third level of environmental design values represents the focus of much professional activity by architects, urban designers and planners. A neighborhood or community operating at this level seeks a physical environment that fosters its own fitness and that conveys an image of being competitive and respected in some way. A specially designated historic neighborhood and a downtown district of special commercial or visual significance (e.g. Chicago's Gold Coast and Magnificent Mile) are examples of this level of values.

Although there is likely to be substantial alignment between the community and the underlying values of an urban design project in many instances, differences among various community groups may still be significant. For example, some community groups may feel that too much emphasis is given to the commercial or visual value of the downtown skyline while the upgrading of residential quality in various neighborhoods is neglected.

4. **Transformation**. In the most basic terms, a transformative environment would be one that fosters or enables an individual or group to move from self-interest to a concern for the common good. Although any number of built or natural environments might operate at this level, it is useful to identify at least a couple of likely examples. A city park or nature trail might be likely to serve in this capacity. People not only visit parks for recreational purposes, but they may also benefit from the restorative capacities of nature (Kaplan 1995), including perhaps a sense of purpose and mission for the common good. From the prospect of a park, one may be able to view the city or neighborhood as a whole and begin to feel a sense of relationship to the larger whole. Similarly, a view of the city or mountains from one's office in a high-rise might trigger a spiritual awakening of self and sense of purpose for the greater good.

5. **Meaning and internal connectedness**. The goal at this level is to create environments that support the internal connections of a neighborhood or community through the sense of fulfillment and meaning for its members. Physical designs that provide places for gathering, ease of access within and between neighborhoods (whether through pedestrian paths or public transportation), and ready availability of public amenities are likely to support the values of this level of consciousness. The proclaimed design goals of much New Urbanist development are consistent with these notions of meaning and internal connectedness. The question of whether there is evidence of such New Urbanist goals actually being *achieved* will be addressed in the second portion of this article.

6. **Community connectedness**. At this level of design there is a clear focus on fostering relationships with neighboring towns and communities, and creating physical environments that complement existing neighborhoods or towns. Physical features which might support such values include: visual linkages between

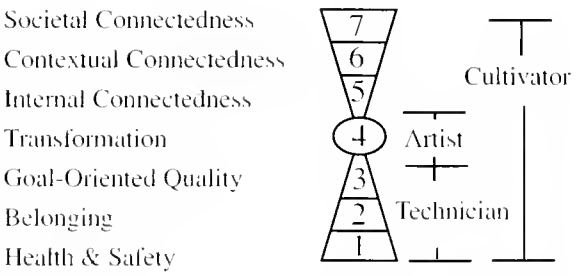
neighborhoods, perhaps including contextually sensitive building designs, physical linkages of street layout and transportation networks between neighborhoods and between towns, and perhaps intentional densification of housing and commercial development. Again, many of the intended goals of New Urbanism are consistent with this level of community-connectedness. Indeed, Doug Kelbaugh, in his new book *Common Place*, suggests that New Urbanist developments are intended to bring "a greater sense of community and coherence to neighborhood and region" (Kelbaugh 1997:3).

7. **Societal and global connectedness**. At this level of environmental design the aim is to support the recognition of the interconnectedness of all life. Sustainability and ecological integrity of both communities and the environment are central goals. In this regard, New Urbanist developments are also intended to address this level of design values; by minimizing residents' need to drive cars, traffic congestion and air pollution may well be substantially reduced. And by increasing housing densities, while simultaneously providing for more public parks and amenities, the overall ecology of the community site is likely to be improved. Again, the extent to which these goals have actually been achieved will be addressed later in this article.

If we return now to the models of design practice (technician, artist, and cultivator) described earlier in this section, they can be further elucidated by matching them against the expanded framework of Barrett's model (see Fig. 4). For example, the "designer-as-technician" model tends to address the environmental values expressed at the first two or three levels of the hierarchy. The strength of the technician model is that the basic requirements of health, safety, welfare, and competence in solving basic client needs are fully addressed; however, this reactive mode of practice tends not to challenge clients/users to go beyond what is and imagine what might be. In contrast, the 'designer-as-artist' model seems to focus to some degree at level 3, but most particularly at the transformational level. Many architects and urban designers conceive of their work in terms of how the individual might rediscover him- or herself through focused attention on a particularly well-designed and/or unusual physical artifact – whether it be a unique centerpiece building, public sculpture, or grand boulevard.

Once we move up the hierarchy to foster environmental values that focus on the common good and reinforce the connections of people within a group, organization, neighborhood, or community, we are then confronting the essence of cultural life. It is at these levels (5, 6 and 7) that the model of "designer-as-cultivator" comes into its own. Just as organizations which seek to operate at these levels must also satisfy the foundational values at the lower levels of the hierarchy, so too the technician and artist roles must be subsumed within the designer-as-cultivator model.

Figure 4. Relationship of Seven Levels of Environmental Consciousness to Designer Roles



Place, Typology, and Design Values in Urbanism

In sum, the three principles which have been just been reviewed can play an important role in helping us to assess the manner and extent to which a given urban design project might engender civic meaning. Through the model of place, we can begin to appreciate the way in which people's actions, conceptions, and the physical setting form a web of shared experiences that constitute 'place.' Any analysis of any urban design project that focuses primarily on just one or two of the components of the place model is likely to yield an inadequate assessment of the

project as a whole, and of civic meaning in particular. Secondly, in analyzing the physical properties of an urban design project, the principles of typology and context are likely to play an important role in people's interpretation of meaning. And finally, any urban design project would ideally represent and foster environmental and community values across the full range of the Barrett model. The particular physical features, as well as the values they represent, may be quite distinctly different between one project and another; but the full range of values would nevertheless be expressed and fostered.

Cultivating Civic Meaning

In this segment of the article, I intend to consider the potential for cultivating 'civic meaning' in suburban versus New Urbanist settings. First I will examine the underlying premises of these contemporary models in relation to the principles of place, typology and context, and design values. And second, I will review the findings of recent empirical research that begin to answer the question of the extent to which the promise of New Urbanism is being fulfilled.

Place, Typology and Design Values in Suburban and New Urbanist Neighborhoods

Over the last thirty years or more, urban designers and researchers have leveled a wide variety of criticisms, much of them well deserved, against the premises and outcomes of Modernist architecture and urban design. Of course, Modernism is not a unitary phenomenon, but it is possible to identify a number of common characteristics of Modernist urban strategies. These characteristics include extensive high-rise development for both commercial and residential purposes, the provision of healthy environments with light and air for all, the accommodation of technically-advanced building and transportation processes, and an 'urban renewal' philosophy whereby much of the existing urban fabric was bulldozed to provide clean, open building sites and districts.

Since the inherent weaknesses of Modernist urban design principles have been well documented by a variety of authors over the years, I will not examine them in any detail here. Suffice it to say that from the late 1960's onwards, critics of Modernist principles began to reexamine the lessons of pre-Modernist architecture and 'traditional' practices of urban design. Certainly the great interest in preservation or adaptive reuse of older buildings, historic district designations, design review mechanisms and the like during the 1970's and onwards is evidence of a disenchantment with Modernist principles and a corresponding interest in the lessons of traditional or pre-Modern urban principles.

Concomitant with Modernist urban design in the cities, significant suburbanization occurred in the post-war period in the United States and, of course, continues to this day. While suburban development is hardly monolithic, it is typified by the ideal of the single family house and neighborhood. Environmental psychologist Karen Franck (1994) has identified four characteristics of this model: 1) privacy and self-sufficiency of each house; 2) intended use by a nuclear family; 3) a neighborhood composed of freestanding houses; and 4) the provision of commercial, service and civic activities *outside* the neighborhood unit.

The suburban model has been such a dominant force in post-war development that few alternatives have been imagined or offered. However, in the last 10 to 15 years, work by a variety of urban and community designers has gradually come to be recognized and labeled as the "New Urbanism." Although there are several variants of this approach, author Todd Bressi (1994) offers a general definition of this trend. According to him, an underlying premise of New Urbanism is that "community planning and design must assert the importance of public over private values." Within this overarching perspective, he identifies several common characteristics, including: a focus on public space, civic amenities, and commercial facilities within each neighborhood; a mix of household types and land uses; a relative de-emphasis on cars as compared to typical suburban planning; and architectural design that responds to local context and traditions.

One way to evaluate the potential of either the

suburban or the New Urbanist model to engender 'civic' meaning is to match the *premises* of the two models against the three principles outlined earlier in this article (see Fig. 5). If we turn first to the concept of place, I contend that we would be doing a disservice to the suburban experience to simply label it 'placeless' as some architects, designers, and the phenomenologically oriented theorists would do (e.g. Relph 1976). If, on the other hand, we take a more analytical approach, we must conclude that its very popularity over the last 50 years attests to its ability to represent a confluence of people's activities and conceptions with its physical properties. One important criticism of the suburban model is, however, that it is relatively less hospitable a setting for people who do not fit the nuclear family profile: teenagers, the elderly, single parents, etc. As Franck has pointed out, the suburban model represents a "powerful desire to accommodate and to *appear* to accommodate (emphasis hers) the 'good times' only" (Franck 1994:228). In contrast, the New Urbanist position argues that the changing character of the family structure, the role of women, and overall population demographics simply requires the provision of a greater mixture of housing and building types. New Urbanists also argue for a realistic attitude toward cars. Unlike urbanists who eschew even minimal provisions for cars, most New Urbanists seek not to eliminate their use but to provide realistic options for walking and public transportation as desirable alternatives.

Moving now to the issues of typology and context, the suburban and New Urbanist models represent slightly different emphases. Both perspectives appear to be comfortable with the typological representations of 'house' form well understood by laypeople. (This is of course in direct contrast with the attitude of many or most professional architects, who are disinclined to design in the more vernacular or vernacularly derived styles.) But in addition, the New Urbanists' goal to include a mix of housing types means that they are also willing to make use of other typologies besides that of the single-family house. On the related issue of context, the New Urbanist position has been clearly articulated in favor of knitting new neighborhoods into the immediate local context and the temporal context of housing traditions within the region. In contrast, suburban models have tended to be much more variable in their attitude towards context. While some suburban neighborhoods are almost hermetically sealed and inward-focused enclaves, others are relatively more connected to and embedded in their local context.

Finally, with respect to the hierarchy of

Figure 5. A Comparison of the Underlying Principles of Typical Suburban and New Urbanist Urban Design Strategies

Underlying Principles	**Urban Design Strategies**	
	Typical Suburban	*New Urbanist*
Model of Place	Integration of 3 components BUT for good times only and primarily for nuclear families	Apparently successful integration of 3 components
Typology & Context	Employs single family house typology Variable relation to context	Employs wider range of typologies Explicit reference to physical and temporal context
Values	More emphasis on individual needs values	Explicit concern for common good values, while satisfying individual needs
Civic Meaning?	Theoretically less likely	Theoretically more likely

consciousness and design values, the two neighborhood models take distinctly different stands. As already stated, the New Urbanist position is to emphasize explicitly "public values" through the provision of community amenities within the neighborhood. Simultaneously, their goal is to provide housing for a variety of individual and family needs, rather than exclusively for nuclear families. On the other hand, as Franck has suggested, the suburban model is premised on a greater level of self-sufficiency for each individual household, thus reinforcing an apparent emphasis on values that privilege individual needs over the common good.

Taken together, these analyses of place, typology/context, and design values would suggest that the New Urbanist model might indeed engender a higher level of 'civic meaning.' At least on the level of its theoretical premises, New Urbanism would seem to: 1) enable a shared experience of place among a greater range of potential residents; 2) offer physical design elements that satisfy most laypeople's understanding of meaning through typology and contextualism; and 3) embody environmental values that include concern for the common good. The question remains, however, whether this can be demonstrated in the lived experience of a New Urbanist community.

The Potential for Civic Meaning in New Urbanism

In addressing the question of whether New Urbanism actually fulfills its promise for a higher level of 'civic meaning,' the ongoing dissertation work of one my doctoral students, Joongsub Kim, begins to provide such an answer (Kim 1999, 2000). Framed in the format of a comparative case study, Kim sought to compare residents' sense of community in Kentlands (a New Urbanist development in Gaithersburg, MD) and a typical suburban development in the same town. In an effort to develop the most robust analysis possible, Kim circulated a lengthy survey questionnaire to every household in each development (achieving a 43 percent response rate in Kentlands and a 37 percent rate in the suburban development). In addition, he conducted in-depth, open-ended interviews with 130 residents and received weeklong activity logs from approximately 70 people.

Although Kim's use of the concept 'sense of community' is not fully equivalent to the concept of 'civic meaning,' there is enough overlap between the concepts that Kim's work provides a good measure of the potential of New Urbanism for engendering 'civic meaning.' Kim's use of the term 'sense of community' derives from an extensive literature review of the New Urbanist discourse, as well as from empirical research on neighborhood and community life. From this, Kim posited four elements that seem to contribute to residents' sense of community: 'pedestrianism,' community attachment, social interaction, and community identity. Pedestrianism, of course, implies that a community is designed for walking and other street-oriented activities. Community attachment refers to residents' emotional bond to their community. Next, social interaction consists of a variety of activities such as neighboring, casual encounters, community participation, and social support. And finally, community identity is defined as personal and public identification with a specific physically bounded community with its own character.

These four components of sense of community were used as a framework for structuring the questionnaire. Residents were asked to rate on a five-point scale the importance of a variety of physical features to their decision to take walks, their feelings of attachment, their social interaction with other residents, and the distinctive character of their community. The survey also contained a battery of demographic questions and some additional global and open-ended questions. The open-ended interviews explored these same four components of community in greater depth, and the activity logs documented both pedestrianism and social interaction.

Earlier in this article, I defined 'civic meaning' as a sense of citizenship, civic engagement, and community cohesion. Although not directly equivalent to the four components of community in Kim's work, this definition of civic meaning certainly seems to encompass the notions of social interaction and community

attachment, and perhaps some aspects of community identity. Only Kim's component of pedestrianism seems outside the definition of civic meaning provided here. Yet clearly, pedestrianism has been included because of the assumption that this activity is likely to lead directly to social interaction and potentially engender a sense of attachment and identity.

The results of Kim's research indicate that Kentlands' residents consistently rate their community as promoting higher degrees of all four measures of sense of community. In other words, Kentlands residents are more likely to walk in the neighborhood, interact socially, and express higher levels of community attachment and identity. Within Kentlands, there is a relatively higher rating of these four components of community among the single family house and townhome households than among the condominium and apartment households. But even the Kentlands apartment dwellers express a slightly greater sense of community than the suburban group's single-family house residents. To date, Kim has only analyzed the survey responses using descriptive statistics; eventual use of inferential statistics will enable him to assess whether these patterns of differences are found to hold at credible levels of statistical significance.

Equally as important to this research are activity logs and a preliminary review of the interview transcripts that confirm the patterns of differences reported in the survey findings. For example, many Kentlands residents spoke with great enthusiasm of walking for shopping or going to the movies, whereas some of the suburban residents complained about the lack of sidewalks on many of their streets. Moreover, the activity logs also document a much higher level of pedestrianism than in the suburban neighborhood. Similarly, one of the most frequently cited strengths of Kentlands is the social interaction among residents. Indeed, as one resident put it: "I moved here because I love friendliness, neighborliness, and interaction among residents." On the other hand, some Kentlands residents acknowledged that the housing density and proximity of the sidewalks to the houses almost "force" social interaction to happen, even when it is sometimes not desired. In contrast, one of the most frequently cited weaknesses of the suburban development is that it is not conducive to social interaction.

Many Kentlands residents expressed their sense of attachment and connection to their community, as well as an appreciation for familiar visual qualities that remind them of favorite childhood environments. In contrast, interviews with the suburban residents yielded relatively few comments of attachment and belonging. Several residents commented on the neighborhood being quite transient. For instance, one resident expressed appreciation for the amenities of the house and neighborhood, but felt it was not her permanent home.

Probably the most frequently mentioned strength of Kentlands is its unique physical character, which the residents view as distinct from other communities. For example, one resident commented: "Kentlands looks very different from others and yet looks familiar. This unique place gives me a feeling of being different. This is my kind of community. I felt a sense of pride when I gave visiting friends a tour of the community." Although the suburban development residents do not necessarily care for the density of Kentlands, some nevertheless express admiration for Kentland's unique character. A number of suburban residents mentioned the positive and distinct qualities of their neighborhood, but with considerably less frequency compared to Kentlands residents.

Finally, the residents' responses to a question regarding the reasons for their move to their neighborhood are particularly relevant to the issue of civic meaning. To be specific, respondents were asked to rate on a 5-point scale the importance of 12 different factors in their decision to move into either Kentlands or the suburban development. Overall, Kentlands residents' top five factors were, in this order: sense of community, traditional town concept, amenities, better housing, and investment. Of these, the first four factors all had ratings substantially above a score of 4. In contrast, the suburban residents' top five factors were, in this order: better housing, amenities, proximity to place of work, sense of community, and needed

larger home. Of these, only the first, better housing, had a rating of over 4. In the context of our discussion of civic meaning, it seems particularly notable that the Kentlands residents' top two factors speak directly to the importance of community or civic values. In contrast, sense of community is ranked fourth among the suburban residents, while the other top factors reveal values that emphasize the fulfillment of individual or family needs.

On the face of it, then, it appears that New Urbanism, as evidenced in the experience of Kentlands residents, can indeed fulfill its promise as a community that does foster civic meaning. However, great caution must be exercised in drawing such a conclusion. One alternative explanation that cannot be discounted is that Kentlands residents may constitute a self-selected sample. In other words, it is possible that people who value a sense of community chose to move to Kentlands, as indeed the analysis of the 'factors for moving' question seems to indicate. On the other hand, the in-depth interviews also revealed that a number of Kentlands residents chose to move there while being relatively unaware of the civic values embedded in the New Urbanist concept. Some of these people commented that their daily habits (e.g. walking or social interactions) began to change significantly after they had moved to Kentlands. To resolve this ambiguity, the usual caveat must be invoked: more research on other New Urbanist projects is needed.

But even without these additional and necessary studies, I would urge urban designers and planners to consider New Urbanism to be a credible alternative to typical suburban development patterns. To those who seek to promote residential developments that foster a sense of community or civic meaning, New Urbanism may well fulfill this promise. CP

Notes

[1] In his essay, "Modern Architecture and Historicity," theorist Alan Colquhoun (1981) asserts that in traditional art (and by implication architecture), "Figurative and hierarchically organized form... creates a sense of cultural centering and gives the impression that the problems of life can be resolved on a transcendental level."

[2] This diagram has been adapted from Barrett's model and includes some minor changes in terminology. Subsequent, to Barrett's publication of it, he as well has modified some of the terminology within his model.

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Sustainability and Local Economic Development: Can Regions 'Learn' to Become Sustainable?

Saeed Parto

There is reasonably widespread appreciation of the need to orient ecologically industrial and economic activity. At the same time, there is an emerging reservoir of empirical information from applying industrial ecology in "eco-industrial parks" (EIPs). This paper argues that these developments offer a unique opportunity to incorporate industrial ecology principles into regional economic development decision-making frameworks in order to move closer to meeting sustainability objectives. Attaining sustainability at the local/regional[1] level requires, among other factors, collective effort by industrial organizations toward common goals including resource conservation, production efficiency, economic viability, and social responsibility. There is a need to identify and/or develop practical management tools and institutional arrangements that nurture desirable organizational traits and discourage practices contrary to sustainable development in the local and global contexts. To this end, this paper attempts to bring together learning from a review of the literature on industrial ecology, "learning" organizations and regions, and ecological economics in an attempt to bridge the current gaps between regional planning policy and the requirements of ecosystem integrity and sustainable industrial development.

***Saeed Parto** is a second year doctoral candidate in the Faculty of Environmental Studies at the University of Waterloo. The following is a portion of his paper presented as part of the Best Paper Proceedings at the 8th International Greening of Industry Network Conference in November at the Kenan-Flagler Business School, University of North Carolina – Chapel Hill.*

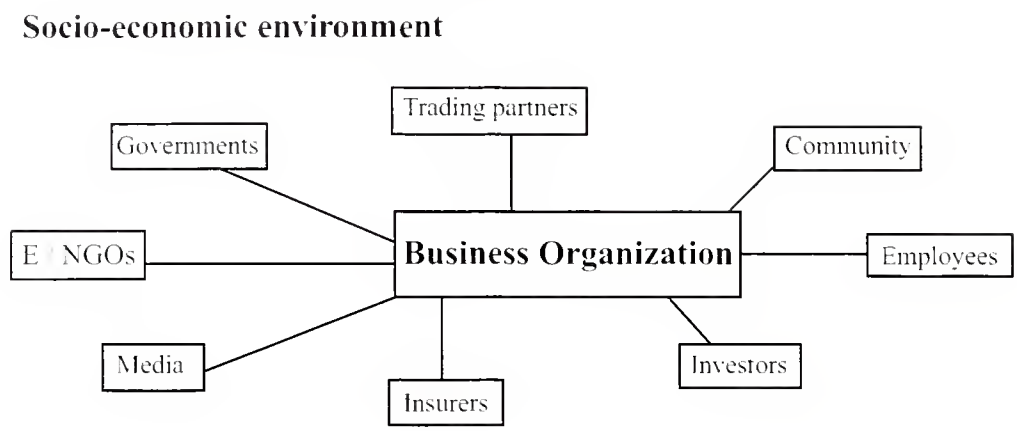
Context of Industrial Activity

A common thread running through most definitions of sustainable development is the recognition that the endemic social, economic, and ecological challenges that confront decision and policy makers at all levels are systemic and, as such, need to be tackled through strategies and policy tools capable of addressing complex multi-faceted issues. In terms of local economic development, "a particular challenge … is to make the necessary connections between economy and society, society and the natural world, [and] local resources and issues and global resources and issues."[2]

A systems view of business activity places the industrial organization in its socio-economic environment in which a multiplicity of actors interact (Fig. 1, next page). Organizations that survive the upheavals and fluctuations of the economic system do so because they are able to adapt to changing conditions by learning from interactions with other system actors. Such learning enables the organization to identify and take advantage of new opportunities including those relating to social and environmental performance. Increasing economic benefits through resource conservation and improved environmental performance is not a new concept to industry, although surprisingly business has been sluggish in tapping into this emerging body of knowledge. This sluggishness is in part attributable to organizational inertia or unwillingness to change established codes of practice[3] and a general absence of adequate and appropriate regulatory incentives.[4]

This situation is changing slowly, however.

Figure 1. A Systemic View of Business Activity



Recent years have witnessed an upward trend in development of innovative organizational models that promote a systemic approach to manage internal and external aspects of business activity. The "learning organization,"[5] the "ecologically sustainable organization,"[6] and the literature on industrial ecology all view systems thinking as a central component of contemporary organizational management models.

Approaches to Sustainable Development[7]

Sustainable development requires "sustainable human communities [that] act like natural ones, living within a natural ebb and flow of energy from the sun and plants.... redesigning all industrial, residential, and transportation systems so that everything we use springs easily from the earth and returns back to it."[8] To accommodate this type of transformation, there needs to be a shift from domination to partnership.[9] Such a shift will require identifying or developing linkages that can facilitate a transition from an economic system that operates despite ecological limits to one that strives to become fully compatible with ecosystem integrity. This transformation will emphasize the need for the highest achievable levels of ecological efficiency in industrial activity while at the same time promoting quality, cooperation, and conservation at the expense of quantity, competition, and expansion. Ecological integrity of human made systems is central to both ecological economics and industrial ecology briefly reviewed below.

Ecological Economics[10]

In ecological economics, unabated economic growth is de-emphasized while the usefulness of conventional economic concepts, e.g., utility maximization, and tools, e.g., cost-benefit analysis, is questioned. Ecological economics promotes sustainability as the goal for all levels, from local to global.[11] Industrial organizations in an ecologically oriented economy would promote ecological awareness and participation within and outside of their physical boundaries through multi-stakeholder partnerships that nurture cooperation and serve the common good.

The basic worldview of ecological economics is founded on the premise that "human preferences, understanding, technology and organization co-evolve to reflect broad ecological opportunities and constraints. Humans are responsible for understanding their role in the larger system and managing it sustainably." Ecological economics is "prudently skeptical of assumptions about technological progress" and proposes a framework that is holistic (whole ecosystem), multi-scale (days to eons, multi-scale synthesis), and multi-level (hierarchical). This framework is oriented toward ecological and economic system sustainability attained by "social organization and cultural institutions at higher levels of the space time hierarchy [that] ameliorate conflicts produced by myopic pursuit of micro goals at lower levels." In addition,

ecological economics aims to address problems in a pluralistic and transdisciplinary fashion.[12]

A significant feature of the industrial economy is its firms and organizations which, when functionally efficient, tend to exhibit a considerable unity of purpose and a high degree of integration. Industrial organizations can simultaneously act as vehicles for and hindrances to sustainable management of human activities within the socio-economic, political, and ecological domains. Recognizing this potential, industrial ecology is concerned with how industrial, and to a lesser degree, service organizations could complement one another in an ecologically efficient manner.

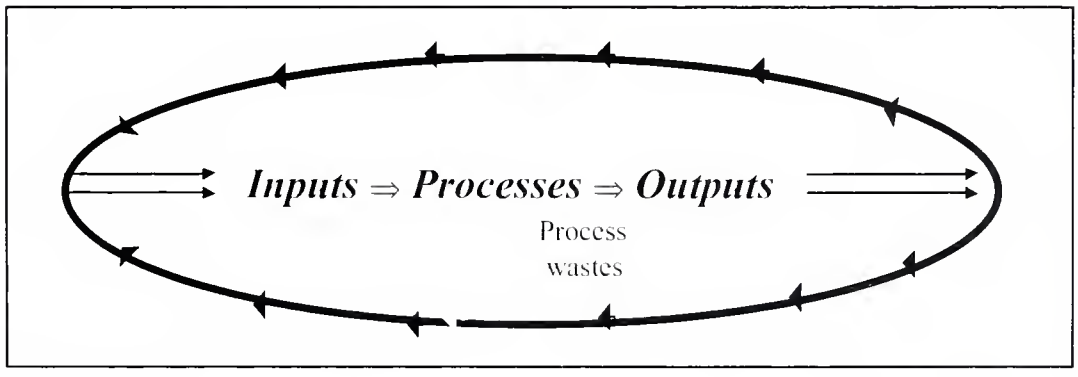
Industrial Ecology[13]

Industrial ecology is based on the concept of "industrial metabolism" (internal processes of a living system) and focuses on establishing closed loops in industrial production processes.[14] Figure 2 is a simple representation of a closed loop in the production system. The degree of circularity as depicted in Figure 2 serves as an indicator of ecological efficiency at an organizational, sectoral, regional, or national level. Industrial ecology has been defined as

> ...the means by which humanity can deliberately and rationally approach and maintain a desirable carrying capacity, given continued economic, cultural, and technological evolution. The concept requires that an industrial system be viewed not in isolation from its surrounding systems, but in concert with them. It is a systems view in which one seeks to optimize the total materials cycle from virgin material, to finished material, to component, to product, to obsolete product, and to ultimate disposal. Factors to be optimized include resources, energy, and capital.[16]

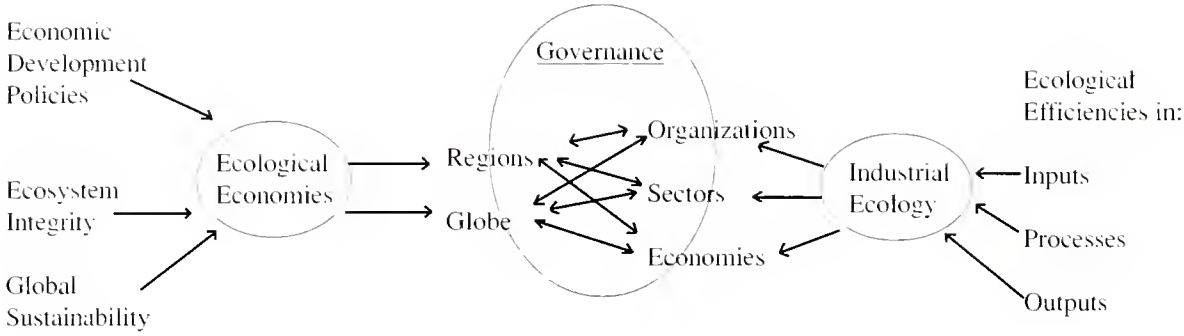
Industrial ecology has important implications for single organizations, groups of organizations, whole economies, or groups of economies. An understanding of industrial ecology is essential to assessing the usefulness and the validity of proposed and actual sustainable development strategies involving such stakeholders as business/industry, communities, and governments. From an organizational perspective, industrial ecology looks beyond environmental "aspect" or "impact" management as offered to varying degrees by currently available organizational management tools such as the ISO 14001 environmental management system standards, the European Eco-Management and Audit Scheme (EMAS), or the chemical industry's Responsible Care program.[17] An increasingly popular application of industrial

Figure 2. Industrial Ecology's "Closed Loop"



SOURCE: Parto (1998)[15]

Figure 3. Convergence in Ecological Economies and Industrial Ecology



ecology is establishing "Eco-Industrial Parks" (see below) based on the "zero discharge" concept (zero generation of effluent, emission, or waste) currently underway and being tested in a variety of local arrangements.

Ecological economics and industrial ecology both emphasize the importance of maintaining ecosystem integrity. Ecological economics proposes employing policy tools to steer economic activity toward sustainability while industrial ecology views industrial organizations, and the collective (and positive) impact of their relationships, as the main agents of change in facilitating ecosystem integrity. Ecological economics and industrial ecology are conscious attempts to "ground" industrial activity (industrial ecology) and economic activity (ecological economics) in the ecological context by arguing that these activities cannot occur independent of the ecological constraints.

Convergence in Ecological Economics and Industrial Ecology[18]

In terms of orientation, ecological economics and industrial ecology start from the opposite ends of a continuum consisting of micro and macro questions (Figure 3). Industrial ecology's starting point is the study of processes or operations of single entities with a view to identify ecologically beneficial linkages across a spectrum of activities (intra-organizational) and sets of activities (inter-organizational) that complement one another. In contrast, ecological economics studies macro scales (regions consisting of numerous municipalities or national economies) in order to identify macro scale linkages (to other regions or economies) consistent with sustaining the ecosystems and to promote institutional arrangements that could support them.

As Figure 3 demonstrates, areas of convergence between industrial ecology and ecological economics are both numerous and significant. These areas are also very explicitly embedded in governance contexts.[19] However, neither industrial ecology nor ecological economics is explicit on governance issues. Such an important omission is likely to weaken significantly the practical validity of models based on concepts of ecological economics or industrial ecology. This omission also confirms the assertion by some that in most studies of industrial districts, the interrelationship between macro-policy and local forces has been insufficiently appreciated.[20] Ecological economics and industrial ecology do nevertheless provide important perspectives for decision makers wishing to pursue ecological sustainability in a more systematic way.

Operationalization of ecological economics

and industrial ecology concepts warrants asking two basic questions. First, how useful are these two disciplines in light of their failure to address governance issues effectively? Second, how can their potential usefulness be tested? The challenge is thus to learn from ecological economics and industrial ecology concepts and define clear principles, operational implications, and contents for decision making frameworks that could be adapted for local economic development and extended to address global sustainability concerns. At the local level, these frameworks are being established to varying degrees through current and proposed plans to develop engineered or "virtual" Eco-Industrial Parks.

Eco-Industrial Parks

The underlying concept of Eco-Industrial Parks (EIPs) is based on ecology, i.e., the study of the interrelationships among different species and species and their physical and chemical environments.[21] Species groups of a stable ecosystem interact with, and are dependent on, one another and their environments through a series of integrated and complex relationships. Integrity, or interaction and interdependence, of system components as exemplified in relatively stable ecosystems is underlined by the proponents of EIPs as the ultimate goal for human-made systems. Ecological integrity of operations in an industrial park could thus be pursued as a goal in order to work toward "an industrial system of planned materials and energy exchanges that seeks to minimize energy and raw materials use, minimize waste, and build sustainable economic, ecological, and social relationships."[22]

The EIP concept has also been defined as "industrial symbiosis or by-products exchanges within a continuum of different levels of complexity" with the key characteristics of "community, cooperation, interaction, efficiency, resources, and systems."[23] EIPs may be actual sites engineered to accommodate compatible types of industrial activity or "virtual sites" or networks arranged based on existing industrial infrastructure. In either case, one of the main objectives is to identify or develop frameworks to facilitate ecologically efficient (and sustainable) industrial development in a predefined geographic area. Examples of EIPs include:[24]

Port Cape Charles, Northampton County, Virginia: Located in an ecologically sensitive area and designated as a United Nations World Biosphere Reserve and a National Oceanic and Atmospheric Administration Special Management Area, the County has high rates of poverty and unemployment. The engineered and mostly constructed EIP is part of a comprehensive strategy to develop a Sustainable Technologies Industrial Park. The EIP is intended to become home to firms that can contribute to developing a national model that promotes business, people, economy, and natural and cultural resources. The objectives of the Port Cape Charles EIP include:

- creation of family-wage jobs and training opportunities;
- protection and enhancement of natural and cultural resources;
- conservation and efficient resource use;
- developing and using industrial ecology principles;
- supporting private businesses and industrial development to revitalize the local economy by combining profitability, resource efficiency, and pollution prevention; and
- increasing the tax base without increasing taxes.

Given the special status attached to Northampton County by the United Nations, the Port Cape Charles EIP experiment has benefited from substantial funds provided mainly by the President's Council on Sustainable Development. However, this experiment is still in its preliminary stages. Far more remains to be accomplished if the above objectives are to be fully or significantly realized. For example, it is not at all clear how the EIP will fit in with the local economy of Port Cape Charles that consists mainly of agriculture, fishing, and heritage tourism based on local arts, crafts, and products. The EIP also needs to be more integrated with ongoing manufacturing activity within Port Cape Charles. The main manufacturing firm in the area is a cement-making firm that exports its products in bulk outside the immediate area. Residents of

Table 1. Existing and Proposed EIPs Grouped According to Main Focus

Economic Revitalization	Sustainable Industrial Development
Port Cape Charles, Virginia	Burlington, Vermont
Fairfield, Baltimore	Oakland, California
Chattanooga, Tennessee	Londonderry, New Hampshire
Plattsburgh, New York	Raymond, Washington
Trenton, New Jersey	Minneapolis, Minnesota
Shady Side, Maryland	Skagit County, Washington
	Brownsville, Texas
	Tucson, Arizona
	Youngsville, North Carolina
	Dartmouth, Nova Scotia

Port Cape Charles are often unable to purchase cement directly from this firm as their demands are usually well below the minimum shipment volume set by the firm.

Closing the loop within Port Cape Charles would require, among other factors, measures aimed at integrating the cement manufacturer's activities into the local economy by, for example, instituting special arrangements for the local residents to purchase cement in lower-than-minimum-shipment-volume quantities from the local manufacturer.

Brownsville, Texas: To alleviate high rates of poverty and unemployment in Brownsville and the adjacent Mexican town of Matamoros, planners have proposed a "virtual EIP" involving firms from the American and Mexican towns that would not require the participating firms to co-locate. The Brownsville-Matamoros virtual EIP initiative has gained support from the U.S. federal government, local businesses, and the regional policy makers.

The virtual EIP concept has great potential and significant implications for regions whose firms are physically isolated and spread over geographically wide areas. The virtual EIP could facilitate technology transfer, waste exchange, and pollution prevention relationships between the participating firms and other stakeholders by gathering, maintaining and disseminating specialized information. At the regional policy level, such information could be used as a basis on which to recruit industrial firms that would "fit", in an industrial ecology sense, the local economy.

Chattanooga, Tennessee: Wishing to operationalize a Brownsville-Matamoros style virtual EIP concept, the regional planners in Chattanooga have attempted to revitalize economically depressed inner-city areas by establishing ecologically efficient co-operative arrangements involving new and present industrial firms, the regional planners, and the local community. The emphasis in the Chattanooga initiative is to encourage industrial development as an integrated component of the City's overall development plan. Mixed land use including commercial, recreation, and residential components is an important feature of the Chattanooga initiative.

In addition, the planners aim to increase industrial activity in the inner-city areas by encouraging the development of warehousing and distribution centres and business incubators. The planners have also considered setting up a technical education centre for the participating firms. These proposed arrangements are similar to other initiatives where industrial incubators are used as training centres for future entrepreneurs as well as supportive environments for the new businesses to thrive. The main difference between

the Chattanooga initiative and incubator projects is the degree of emphasis placed by the Chattanooga planners on the environmental aspects, impacts, and the goal to close the production system loop, in an industrial ecology sense, through elimination or minimization of various wastes.

Dartmouth, Nova Scotia: There are over 1,200 mainly small business organizations in the Burnside Industrial Park, Dartmouth. Since 1992, researchers from the School of Resource and Environmental Studies, Dalhousie University, have been studying the Park as a test case to evaluate transformation possibilities from a conventional industrial park to an eco-industrial park. The Park has been described as "work in progress and a 'living experiment' which will continue for some time."[25]

In addition to the above cases, there are a number of EIP plans at the proposal stage, especially within the United States. There is little available information on these cases apart from goals and broad objectives. It is reasonably clear, however, that EIP-based planning proposals are to varying degrees focused on meeting two broad objectives: revitalization of economically depressed areas and/or developing locally driven arrangements to facilitate sustainable industrial development (Table 1). In both cases, the proposals are based on integrating land use by attempting to reconcile industrial with agricultural and residential land requirements. Another common feature in all cases is the desire to promote industrial activity consistent with ecological and economic priorities. Table 1 is a summary of current and proposed EIPs according to their main focus. It is also apparent from the available information that the main motivations to apply the principles of industrial ecology through developing EIPs include:

Site manageability: Engineered EIPs are generally located in predefined and enclosed areas consisting of industrial organizations that are in close proximity to one another, face common challenges, and do not have immediate contact with the community at large. Virtual EIPs are based on clusters of industrial organizations that operate through a common network that may or may not include communities. In either case, structural design implementation and decision-making are relatively simpler than within whole regions, e.g., municipalities consisting of residents and non-industrial types of economic activity. Industrialized regions tend to be socio-politically, economically, and structurally more diverse, complex, and challenging to manage at the macro (policy) level through imposing a unified common network.

Availability of government funding: The Burnside experiment has received funding from various levels of government.[26] Similarly, Port Cape Charles, Brownsville, and Chattanooga are all supported through direct funding by the President's Council for Sustainable Development.[27] Because of their geographical characteristics, EIPs are generally easier to support as "experiments" resulting in predefined, relatively short-term, and tangible deliverables. Within a relatively short period of time, EIPs can be expected to establish themselves as economically viable and ecologically efficient arrangements for industrial production.

In contrast, long-term, locally defined visions of sustainability with a multitude of long-term and less tangible benefits are more difficult to articulate in terms of immediate and medium term deliverables. Government support and funding for such proposals is often routinely reviewed and reevaluated by each newly elected government against other, more immediate, priorities.

Existence of a successful EIP model: Most EIP models are inspired by the successes of the Kalundborg Eco-Industrial Park in Denmark.[28] The Kalundborg EIP was informally initiated in 1975 by a group of industrial organizations that resided in an industrial park and faced strict regulatory requirements within their shared jurisdiction. A common goal to reduce compliance costs by the park's resident organizations resulted in ecologically efficient and economically cost-effective arrangements to meet regulatory requirements. This initiative led

Table 2. Integrating Industrial Ecology and the Local Economic Base

• "Map" the economic base by preparing a categorized inventory of industrial activity within a predefined region;
• Using industrial ecology's "closed loop" concept, identify gaps within the categorized inventory;
• Consult with local communities, and/or use secondary data from other studies, to identify community needs and expectations;
• Consult with local businesses, and/or use secondary data from other studies, to identify partnership potentials with incoming new businesses;
• Develop and introduce policy incentives that promote and nurture collaboratives and networks among firms and other stakeholders;
• Aggressively pursue opportunities to recruit businesses that fit the local business needs and the local industrial ecosystem;
• Cooperate with other regions on waste minimization, technological transfer, and pollution prevention strategies; and
• Develop partnerships between the local government, community, industry, and learning institutions to promote adequate and appropriate regulatory frameworks (environmental, health and safety, and social) to advance collective ecological efficiency, economic performance, and social accountability.

Source: Waterloo Industrial Network for Sustainability [WINS][30]

in turn to cooperation with government agencies aimed at reconciling economic development and environmental protection objectives.

Most EIPs strive to emulate the Kalundborg successes, i.e., systemic integration of industrial organizations based on resource conservation, waste minimization, and shared environmental protection technologies aimed at current and future economic viability and profitability. The Kalundborg experience and other types of industrial ecology application have important implications for sustainable development strategies in a local/regional context. Of particular relevance to challenges that confront locally driven economic development strategies are the multi-stakeholder and integrated approaches that could be promoted through applied industrial ecology. Some of these possibilities are explored next.

Local Economic Development and Sustainability: A Framework

The need to build business firm and local economic base resilience has been the focus of much of the literature on "learning regions," albeit from an exclusively neoclassical economics standpoint. As a result, the literature is both "uneecological" and apolitical, concentrating mainly on purely economic terms of reference such as "innovation" and "competitiveness" to gauge success in learning regions.[29] Recognizing the links between industrial activity, economic development, and social and ecological integrity and well-being as necessary components of sustainable local economic development requires a more encompassing approach. "Studying" firms and regions must be redefined to combine social and ecological considerations and constraints with economic ones.

Moving toward sustainability at the local

level requires collaboration centered on meeting common sustainability objectives between the local communities, businesses, and government departments. One way to bring about this type of collaboration is through operationalizing partnership mechanisms based on industrial ecology principles. Using the available information on a region's economy and ecological characteristics, it is possible to compile an "inventory" of the current types of industrial activity and define a set of ecological aspects associated with each activity (Table 2). This data could be used for two purposes.

First, common targets of environmental quality could be defined for a region as a whole based on the identified gaps and the region's capacity to fill them. These common targets should be based on consensus among government, industry, and the community to facilitate a type of industrial development that is geared toward minimizing adverse environmental impacts and encourages socially, politically, and ecologically sustainable economic development.

Second, based on the inventory, the region could provide mechanisms for regional subdivisions (area municipalities) and local firms to cooperate through a knowledge network that diffuses information on waste exchange, pollution prevention, and environmental technology transfer and exchange. The region could also provide guidelines for and assistance in recruiting industry that is less than proportionately represented within its jurisdiction. Such policies could be aimed at closing the ecological loop in the larger economy of the entire region. As the region's implementation agents, local economic development personnel could then concentrate their efforts on recruiting industrial organizations that represent an ecological fit into the local industrial ecosystem.

An important implication of operationalizing industrial ecology concepts in a local economic development context is the need to reinterpret the conventional role of government officers from "professional decision makers" to "facilitators and intervenors". More generally, industrial ecology's full potential is likely to be realized in regions that have coherent visions of sustainable economic development; specific and realistic ecological, economic, and social objectives and targets; institutional arrangements to facilitate meeting these targets; and evaluation and review mechanisms that allow revisions and adjustments to objectives and targets in light of new information. Much of this work can and should be done through the local economic development offices and under active guidance from the regional government.

Industrial ecology is a relatively new concept and an area of research little explored. Developing practical applications to meet local sustainable development objectives requires operationalizing concepts from new and emerging fields such as industrial ecology and evaluating them in local economic development contexts.

There are also implications of industrial ecology beyond the local/regional scope. Regional sustainability cannot be realistically studied in isolation from the larger economy that, in turn, needs to be studied in light of the global economy and ecological constraints. Supported by macro policy frameworks, especially those inspired by ecological economic concepts, industrial ecology offers a comprehensive set of tools for ensuring that future economic development strategies are consistent with a broad vision of sustainability.

Conclusion

There exists a large gap between regional policy statements on sustainable development and what could be practically achieved in a local planning framework that employs industrial ecology techniques and strives toward an ecologically sustainable economy. It is difficult to envisage the challenges and opportunities that might exist in operationalizing industrial ecology (or assessing the implications of ecological economics concepts) in the context of local sustainability since little research has been done in this area. It is clear, however, that local sustainability strategies need to be based on local peculiarities and characteristics and on cognizance of inherent conflicts and competing interests between regions, locales (e.g., area municipalities), businesses, and communities.

In attempting to close this gap, we could do worse than experimenting with and learning from

innovative concepts of industrial ecology, such as Eco-Industrial Parks, to create local synergy. This type of experimentation is only realistically possible in regional planning frameworks whose emphasis on how things are done (i.e., the political questions) is at least equal to the emphasis placed on what is achieved in the short term and as tangible results. EIPs and various examples of the learning region simply point to a potential for collective endeavors to address sustainability at all levels. While there are no magic formulas for success, much learning could be gained if policy makers were to integrate social, economic, and ecological (environmental) considerations in policy decisions. CP

Notes

[1] "local" and "regional" are used in this paper to refer to municipalities consisting of various types of urban centres such as cities, towns, and rural areas, and governed by a single municipal government.

[2] Gamble, D. and M. Weil, "Sustainable Development: The Challenge for Community Development", *Community Development Journal*, 32:3 (1997), pp. 220.

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[4] Gibson, R.B., (ed.), *Voluntary Initiatives: The New Politics of Corporate Greening*, (Peterborough, Ontario: Broadview Press, 1999).

[5] Senge, P. (1990), (Note 3).

[6] Starik, M. and G. Rand, "Weaving An Integrated Web: Multilevel and Multisystem Perspectives of Ecologically Sustainable Organizations", *The Academy of Management Review*, 20:4 (October1995), pp. 908-936; Devereaux Jennings, P., and P.A. Zandbergen, Ecologically Sustainable Organizations: An Institutional Approach, *The Academy of Management Review*, 20:4 (October1995), pp. 1015-1052; and Gladwin, T.N., J.J. Kennelly, and T-M Krause, "Shifting Paradigms for Sustatinable Development: Implications for Management Theory and Research", *The Academy of Management Review*, 20:4 (October1995), pp. 874-908.

[7] Adapted from Parto, S., *Corporate Environmentalism and Sustainable Development: Assessing Organizations for Social and Ecological Sustainability*, ERS Master thesis, (University of Waterloo: 1998), pp. 42-47.

[8] Hawken, P., *The Ecology of Commerce*, (New York: HarperBusiness, 1993), pp. xv.

[9] Costanza, R, (ed.), *Ecological Economics: The Science and Management of Sustainability*, (New York: Columbia University Press, 1991).

[10] Adapted from Parto, S., (1998, Note 7).

[11] Costanza, R., (1991, Note 9).

[12] Costanza, R., (1991, Note 9), *ibid.*, pp. 5.

[13] Adapted from Parto, S., (1998, Note 7).

[14] Various aspects of the closed loop are discussed in: Allenby, B.R. and A. Fullerton, "Design for Environment – A New Strategy for Environmental Management," *Pollution Prevention Review* (1992); Allenby, B.R. and D.J.Richards (eds.) *The Greening of Industrial Ecosystems*, (Washington D.C.: National Academy of Engineering, 1994); Allenby, B.R., "Industrial Ecology: the Materials Scientist in an Environmentally Constrained World," *MRS Bulletin* (1992); Ayres, R.U., "Industrial Metabolism," in Ausubel, J.H. and H.E. Sladvich (eds.), *Technology and Environment*, (Washington D.C.: National Academy Press, 1989); Ayres, R.U., L.W. Ayres, and Frankl, P., *Industrial Ecology: Towards Closing the Materials Cycle*, (Cheltenham, U.K.: E. Elgar, 1996); Ehrenfeld, J.R., "Industrial Ecology and Design for Environment: The Role of Universities", in Allenby, B.R. and D.J.Richards (eds.) *ibid.*; Frosch, R.A., and N.E. Gallopoulos, "Strategies for Manufacturing," in *Managing Planet Earth: Scientific American Special Issue*, September (1989); Frosch, R.A., and N.E. Gallopoulos, "Towards An Industrial Ecology" in Bradshaw, A.D., R. Southwood, and F. Warner (eds.), *The Treatment and Handling of Wastes*, (London: Chapman and Hall, 1992); Graedel, T.E. and B.R. Allenby, *Industrial Ecology*, (Englewood Cliffs, NJ: 1995); and Tibbs, H.B.C., "Industrial Ecology: An Environmental Agenda for Industry," *Whole Earth Review*, Winter (1992), pp. 4-19.

[15] Parto, S., (1998), (Note 7).

[16] Graedel, T.E. and B.R. Allenby, *Industrial Ecology*, (Englewood Cliffs, NJ: 1995), pp.8.

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The Impact of Urban Boundaries on Mass Transit: A Lesson for Atlanta?

Allison Frankel

Ideas for increasing the effectiveness of mass transit are constantly emerging. Are there circumstances favoring transit programs in one city compared to another urban area? Indeed, the factors behind the failure of some transit programs and the success of others are not easily generalized. However, constraints on urban expansion and increased densities observed in areas with these constraints are at least two factors that favor transit. This paper uses four case studies to examine the effectiveness of mass transit in cities or urban areas where expansion is limited by growth boundaries, either politically or geographically imposed. The lessons learned from these examples then will be examined in relation to the Atlanta region, which has no physical constraints on urban expansion as well as lower rates of transit ridership.

Before any further discussion of this issue, however, several definitions are in order. First, this analysis will measure mass transit's success by its effectiveness, using the definition provided by Gordon Fielding:

> Effectiveness is the deployment of service to accomplish goals (increasing passenger trips to produce more revenue or to reduce traffic congestion). (Fielding 1987:8)

Mass transit, for the purposes of this study, is defined as any sort of public transportation that moves people within a city. Although travel networks for pedestrians and bicyclists are important components of an effective transit system, this study only considers rail and bus service.

The concept of a boundary also requires clarification. A geographical boundary is any physical feature that makes the extension of services impossible or economically infeasible. An artificially imposed boundary is a legal barrier drawn to separate areas that may be developed from those where development is discouraged. Artificial boundaries can be in the form of urban growth boundaries, open space programs or other equivalent plans that distinguish land that may be developed from that which is protected from development.

Although Atlanta is the focus of this study, four other urban areas are included for their relevance as examples of cities with geographic boundaries and with legally imposed boundaries. Manhattan and Madison, Wisconsin are cited as cities with geographic constraints. Manhattan is an island with an extremely high population density, where most residents rely on the bus and subway system for all of their day-to-day travel. Madison, on the other hand, is on an isthmus and has a population of slightly more than 200,000. However, its bus system boasts higher ridership than those in many cities two or three times its size.

Two different types of legally imposed boundaries are found in Portland, Oregon and Boulder, Colorado. Portland is the larger of the two cities and has rail and bus routes that cover the Tri-county region. Development in this region is constrained by an urban growth boundary, a state-mandated 'line in the sand' which limits the

***Allison Frankel** is a master's degree candidate in City and Regional Planning at the University of North Carolina at Chapel Hill.*

possible outward expansion of the city, resulting in a high-density area within the boundary (Oregon Department of Land Conservation and Development 1995). Similar results were achieved in Boulder, where the city has used money from a sales tax increase to purchase and protect prairie land surrounding the city. Initiated with ecological preservation in mind, Boulder's open space program limits the expansion of suburbs by precluding development on this publicly-owned property, resulting in a higher density downtown. Boulder's mass transportation system also includes an extensive network of biking and walking trails (Boulder Department of Open Space).

Finally, we examine Atlanta, a city with essentially no boundary to limit expansion. Because of its flat topography and lack of legally imposed boundaries to development, the Atlanta metropolitan area has spread to encompass over 6,000 square miles in 20 counties (U.S. Bureau of the Census 1998). Environmental Protection Agency Clean Air standards have not been met in any of these counties since 1980 because of heavy automobile traffic (Atlanta Regional Commission 1996). Although the Metropolitan Atlanta Rapid Transit Authority (MARTA) serves the area with heavy rail and buses, mass transit in the region is severely under-utilized. As of 1990, MARTA served only slightly more than half the region's population — 1,241,000 out of 2,158,000 people in the region, according to the National Transit Database.

While many factors contribute to MARTA's ineffectiveness, a case can be made that they can all be traced either directly or indirectly to the lack of an urban boundary. As Atlanta has expanded over the past several decades, the rate of increase in developed land area has occurred at many times the rate of population increase (Atlanta Regional Commission). This is a symptom of unmanaged growth as well as one of the causes of ineffective mass transit. The vastness of the region also has caused a declining downtown and the subsequent choice by many business managers to locate outside the city in office parks that closely resemble the suburban subdivisions where they reside. The result has been a dispersed pattern of commuting in which people live in one suburb and work in another. A mass transit system focused on carrying passengers to and from downtown Atlanta is therefore not an option for most employees to travel between home and work.

Atlanta's average daily commute of 34.1 miles is the longest of any U.S. city (Atlanta Regional Commission). Many Atlanta residents spend over two hours a day on slow moving highways, and the wasted time and frustration associated with this commute has convinced many businesses to locate elsewhere, hurting the city's economy (Sierra Club 1998). An effective mass transportation system could be the answer, but despite MARTA's efforts, this has yet to be accomplished.

Legal and Geographical Boundaries as a Means to Densification

Higher densities tend to result within urban areas when boundaries are in place. Geographic boundaries limit urban expansion because it becomes too expensive to provide services such as sewers, water and electricity to locations beyond the limiting physical feature (Oregon Department of Land Conservation and Development). Similarly, legally imposed boundaries enable local governments to limit expansion through regulatory mechanisms such as a policy not to extend water or sewer services outside a designated growth boundary. In urban areas with constraints, most growth should occur within a limited area, and population density therefore should increase due to a limited supply of land.

Comparing the population densities of cities with and without growth boundaries demonstrates how great an impact these limits can have on managing growth. According to Census data, Boulder has a population density of 3,622 persons per square mile, as compared to 3,071 for Atlanta. This disparity is even more pronounced than these numbers suggest, as the 20-county Atlanta MSA has an overall density of less than 1,000 persons per square mile.

It is straightforward to show that population densities in general are higher in cities where boundaries exist. More challenging to prove, however, is that this is generalizable to larger metropolitan areas, and that the increased density

within these boundaries improves the effectiveness of mass transit.

Mass Transit in Low Density Regions

Mass transit in a region where development is spread out cannot serve as much of the region as a transit system in a more compactly developed urban area. As Anthony Downs states, "(L)ow-density settlements cannot efficiently support mass transit" (Downs 1994:8). Comparisons of the degree of transit coverage indicate that the bounded cities are more extensively served by mass transit than Atlanta (see Table A, page 43). Even when there is public transportation available from the suburbs to the urban center, low-density patterns encourage residents to rely on their cars and discourage mass transit use.

There are also significant planning challenges that negatively impact mass transit in low-density regions. When a region grows more rapidly in land area than in population, the idea of an urban center is frequently lost. While mass transportation can attempt to link outlying areas to the urban core, the core is rarely still the vital city center it may once have been. In Atlanta, for example, fewer than 5 percent of all businesses are located downtown (Atlanta Regional Commission 1995). Therefore, MARTA's focus on connecting people to downtown Atlanta results in very low rates of ridership. Another problem with low-density regions is that fixed rail systems have difficulty placing their stations. One MARTA planner explains that "many areas traversed by the rail lines are low-density suburbs, with high car ownership" (Stone 1999; Weyandt 1999). Suburbs are not typically planned to include a transportation center where mass transit would be accessible and widely used.

As a result of these problems, cars tend to be the most convenient means of transportation for residents of unbounded, low-density regions such as Atlanta. The prevalence of single use, low-density neighborhoods has left few employment and commercial uses within walking distance of residences. Between 1983 and 1990, low-density patterns of urban expansion resulted in a 29 percent increase nationwide in the average vehicle miles per household (Downs 1994:8).

In evaluating these facts, it is important also to consider that demographic data indicate that in cities where mass transit is a widely used form of transportation, people of all income and education levels use it. In low-density cities where mass transit has lower levels of ridership, there is a significantly higher proportion of lower income and less educated patrons (Tri-Met Station 1996a). This difference reveals that in low-density areas, mass transit patrons are mainly those who cannot afford to drive—the decision to use mass transportation is purely an economic one. However, in high-density areas, mass transit is more convenient and thus even automobile owners choose public transportation for many trips (Tri-Met Station 1996b).

The Benefits of Mass Transit in High Density Regions

More densely populated cities have much higher rates of transit ridership than do their low-density counterparts:

> ...if residential and commercial growth is too widely dispersed, it will be harder to develop a mass transit system to best serve that population. However, if development is more controlled and contained in compact areas, mass transit will be more efficient (Mullins 1995:4).

The cities discussed in this study confirm this statement. Atlanta's commuters use mass transit less frequently than do those in Madison. When a city has only a limited amount of land that can be developed, land becomes more scarce, and therefore more valuable. More intense land uses — such as apartments, townhouses and detached houses on small lots — should result as developers seek to recover the costs associated with rising land values.

With only limited space to develop upon, huge interstates are not the norm. Automobiles lose much of their appeal, as driving becomes less reliable and slower than mass transit. These factors serve as deterrents to using the private automobile as one's primary mode of transportation. "People actively dislike congestion, presumably because it represents two significant wastes. These are excessive operating costs and

wasted time" (Creighton 1970:8).

The compact urban form one would expect to find in bounded urban areas translates into more opportunities to locate transit stops near a greater number of homes and businesses. However, as buses and rail become a more feasible means of transportation, the areas near transit stations become desirable locations. As private automobile use becomes less convenient, residents will want to live where they have access to mass transit. At the same time, businesses will recognize the distinct advantage of being close to the rail or bus routes as a way to attract employees and customers.

In Portland, for example, the areas around the new Westside extension of light rail were thriving even before construction was completed. The Eastside line opened in September 1986 and "more than $1.3 billion worth of development has occurred within walking distance of the Eastside MAX line since the decision to build" (Tri-Met Station 1996a). Based on the increased value of property around the previously existing rail line, many investors were anxious to take advantage of the property available near the new Westside transit stations.

Methods of Comparison

The cities included in this study were compared using a method of analysis employed by Cambridge Systematics, Inc., a planning firm that specializes in evaluating mass transit performance. This method involves examining how various mass transit systems compare based on two main factors: rates of ridership and degree of transit coverage.

Comparisons between transit systems are problematic because of variations in the size and population of the cities studied, as well as their policies. An additional complicating factor is the uniqueness of each city's transportation system in terms of both transit operations and the automobile network. An effort was made to normalize the data collected by adjusting the raw numbers for each city's particular size and population. The result is an understandable set of data that can be reasonably compared across seemingly incomparable cities.

Rates of Ridership

To find the rate of ridership, the annual number of passenger trips for 1997 was divided by the total number of residents of each city or region. This number can be interpreted as the annual number of mass transit trips per capita. While it is a useful measure of comparison, it should be noted that the total number of trips per resident tends to be higher in more tourist-oriented cities because tourists who use transit are not subtracted from the total number of trips. Therefore the per-resident ridership for the more popular tourist destinations such as Atlanta and Manhattan are somewhat inflated.

Degree of Mass Transit Coverage

This measure was determined by dividing the total number of route miles by the land area of the city in square miles. The result reflects the general quality of transit service within a region, although not necessarily for specific areas or between specific origins and destinations. Therefore, while these numbers are important as a means of comparison, they do not fully reflect how much of the city is accessible to mass transportation.

Case Studies of the Impact of Geographical Boundaries on Mass Transit

Geographical Urban Boundaries

The benefits attributable to the densification of geographically bounded cities were discussed above. The next step is to demonstrate a correlation between high-density bounded cities and effective mass transit. The following examples aim to illustrate this relationship.

Manhattan

In many ways, Manhattan represents the extreme example of the effects of a geographical growth boundary on transit ridership. Although bridges and tunnels link Manhattan to the city's other four boroughs, Manhattan Island remains the geographical, social and economic center of New York. Not surprisingly, its population density is the highest in the country at 65,428 persons per square mile.

In addition to this high population density,

Manhattan also has one of the most heavily used mass transit systems in the world. Buses and underground subways cover nearly every corner of the island's 23.7 square miles (Metropolitan Transportation Authority 1997). There is an average of 10.6 miles of transit lines for every square mile in Manhattan, by far the highest of the cities in this study (see Table A).

Manhattan's rate of ridership is also strikingly high. According to 1997 data from the New York Metropolitan Transit Authority (MTA), Manhattan provides 474.8 trips per resident annually, far exceeding the other cities considered in this study. This is likely the result not only of the high degree of transit coverage, but also the high cost and relative inconvenience of automobile travel within the city. Manhattan's congestion makes automobile travel more time consuming than mass transit. Also, tolls, gas and parking are significantly more costly in comparison to other areas and therefore serve as deterrents to auto use.

The effectiveness of Manhattan's mass transit is indisputable. If we consider the Fielding definition of effectiveness (the deployment of service to accomplish goals), the objectives of the New York MTA have been achieved.

Madison, Wisconsin

Although Madison has a population of slightly more than 200,000 residents, it boasts a highly effective bus system and is currently considering the inclusion of rapid rail as part of its mass transit program, which would make it the first city with fewer than one million people to have a light rail system (Mullins 1997:1-3). Only 64,787 of Madison's 104,887 commuters drive to work alone, meaning that over 38 percent of its residents carpool or use alternate means of transportation (U.S. Bureau of the Census 1990).

It is Madison's geography that makes it so suitable for mass transit:

Table A. Degree of Transit Coverage

City or Region	Miles of Mass Transit	Area (square miles)	Degree of Transit Coverage (miles of transit per square mile)
Manhattan	251.6	23.7	10.6
Madison	365.5	55	6.6
Portland	758.5	363.1	2.1
Boulder	82.5	25	3.3
Atlanta	1587	6126	0.3

Table B. Rates of Ridership

City or Region	Total Annual Trips (1997)	Total Population (1998 estimate)	Average Annual Trips per Resident
Manhattan	590,000,000	1,550,649	380.5
Madison	12,208,755	209,306	58.3
Portland	71,389,345	1,300,000	54.9
Boulder	3,050,226	90,543	33.7
Atlanta	170,380,432	3,746,059	45.5

For Portland, the area and population are that inside the urban growth boundary.
For Madison and Boulder, the area and population are that within the city limits.
For Atlanta, the population and area are that of the metropolitan area.

NOTE: The population of the entire Atlanta MSA is used because it is not clear what areas of the region MARTA should serve in the absense of a defined boundary. Therefore, it is assumed that MARTA should serve the entire Atlanta metropolitan area.

SOURCES: 1997 National Transit Database; U.S. Bureau of the Census; Portland Metro; personal interviews

> The same isthmus that makes Madison a geographically unique city may move it toward establishing a rail-based transit system sooner than cities much larger than it – such as Milwaukee (Mullins:1).

According to 1998 Census estimates, Madison's population density is 3,805 persons per square mile, higher than that of many cities its size (U.S. Bureau of the Census 1998).

Madison planners are well aware of the importance of their high-density communities. Bob McDonald of the Dane County Regional Planning Commission stated that "the more dispersed (the population) becomes, the harder it is... for transit to serve it" (Mullins:5). The city's planners have therefore made an effort to restrict the expansion of Madison in favor of higher density, less automobile-dependent neighborhoods. The result is a city with a mass transit system that is not only effective but also well-received, with a ratio of complaints to total riders of 1:10,000.

Non-Geographical Urban Boundaries

While many urban areas lack geographical, or natural, constraints to growth like those of Manhattan and Madison, cities have imposed policies and regulations to restrain growth. Two such examples are Portland's urban growth boundary and the open space program in Boulder.

Portland, Oregon

Urban growth boundaries are defined as lines that:

> mark the separation between rural and urban land. They are intended to encompass an adequate supply of buildable land that can be efficiently provided with urban services (such as roads, sewers, water lines and street lights) to accommodate the expected growth during a 20-year period (Metro 1997).

In the early 1970s, a statewide program in Oregon mandated the development of urban growth boundaries, or UGBs, for every city and town, with the intention of preserving Oregon's natural environment (Dionne, Jr. 1997: 2). Ethan Seltzer, director of the Institute of Portland Metropolitan Studies, explains, however, that urban growth boundaries have done much more than protect rural land from development: they have changed entirely the development patterns of the cities which employ them (Dionne, Jr.:2). In general, these cities have denser development patterns and therefore contain more areas that are conducive to alternative forms of travel such as transit, walking and bicycling. The prevalence of bicycling and walking may help explain Boulder's relatively low per-capita ridership, as the compact development patterns there have reduced the need for motorized travel via automobiles and transit.

While this idea of designating land for development based on expected growth patterns and vacant spaces already within a city has been adopted in different places all over the country, Portland is the largest city to do so. It is therefore useful to examine how Portland's Tri-Met system, which consists of both light rail and buses, has evolved as a result.

Because of the densification that has occurred within the urban growth boundary since its establishment in 1973, "the city's 450,000 residents are served by one of the most extensive mass transit systems in the nation" (News & Observer 1997). The rate of ridership is 54.9 trips per capita, higher than that of Atlanta. The city is also well covered by the Tri-Met system; 758.5 miles of transit serve an area that is 363.1 square miles, indicating a coverage of 2.1 miles of transit lines per square mile of area.

Hal Simmons, Chief of Comprehensive Planning in Boise, Idaho, says that the UGB in Portland:

> ...has made the region more attractive to major employers, who are drawing workers with higher wages. Portland's land-use policies have brought it a vibrant downtown with shopping and entertainment, trendy boutiques and micro-breweries, and fashionable neighborhoods. That's made the city a desirable place to live (Johncox 1997:2).

For this reason, many cities without natural geographic boundaries have looked to the example set by Portland and the state of Oregon as a model for their own development.

Boulder, Colorado

In the late 1960s, Boulder instituted an open space land acquisition program to protect land from development. Acquisition programs purchase land, typically with public funds, to be owned and maintained by a designated government agency (News & Observer). Open space preservation programs may not be expressly for limiting sprawl, but they can effectively serve as urban growth constraints by removing developable land from the market. Therefore, when open space land is acquired near a city, it functions much like an urban growth boundary, but with even more permanence.

Boulder is about 30 miles northeast of Denver in the foothills of the Rocky Mountains. Although the mountains border Boulder to the west, the rest of the city is surrounded by agricultural and prairie land — areas that may be ripe for development. Boulder took steps to create a buffer zone to protect the region from unbridled growth. Citizens voted in 1967 to increase the city sales tax by one percent in order to raise money to acquire a buffer zone of open space that will remain undeveloped (Boulder Open Space Department:2).

The additional sales tax revenue has paid for more than 30,000 acres to date, providing a boundary of open space that has benefited the city of Boulder in many ways. The acquisitions not only have protected land for agriculture, cultural resources, water resources, wildlife, native plants, and recreation, but they also had a positive effect on the city's urban development patterns (Boulder Open Space Department:5). As in Portland, limitations placed on the city's growth caused Boulder to develop into a relatively high-density city. This density has in turn created an environment conducive to an effective mass transportation system, illustrated by its high degree of coverage (3.3 miles of routes per square mile).

Boulder's transportation system is part of the Denver metropolitan area's Regional Transportation District, or RTD. It serves 83,312 permanent Boulder residents (1990 Census), in addition to the many university students who live in Boulder for part of the year. It is also important to note that bicycling and walking are also common modes of transportation; these are facilitated by the close proximity of residential and commercial zones that resulted from dense downtown development.

Another benefit of Boulder's high population density is the existence of well-defined centers of commerce. While a single city center is possible in low-density regions, it is more likely that multiple centers will develop to accommodate residents in all parts of the city. Bounded cities, on the other hand, have higher population densities that tend to concentrate retail in one or two central commercial areas. These retail centers make it easier to plan mass transit routes that will take people where they want to go in a timely and cost-effective manner. It is also important to acknowledge the importance of other policies related to parking. Most, if not all, of the parking spaces near Boulder's Pearl Street shopping area and University Hill center have meters that limit parking to two hours and charge 25 cents per half-hour (Dunning 1997). This makes it simpler and often less expensive to use alternate modes of transportation.

Atlanta: City without a Boundary

The above-mentioned urban areas generally have developed differently compared to cities with few growth constraints. Low-density sprawl, heavy reliance on personal automobiles, increased pollution, development of agricultural land, and the destruction of ecologically valuable land tend to characterize cities without boundaries. The result is a low-density pattern of development where relatively few residents live near bus stops or rail stations. Therefore, these unbounded cities are also usually associated with ineffective mass transportation.

Atlanta provides a classic example of low-density sprawl. Because there is no boundary to limit the city's spread of growth spatially, developers essentially are free — provided they have access to the necessary infrastructure — to convert formerly rural land far outside the city into suburban developments. The metropolitan

area now stretches over 3,000 square miles, and this figure includes only the area under the auspices of the Atlanta Regional Commission. This unchecked development has led to a low regional population density and even a negative growth rate in the city of Atlanta itself, indicating that the city has suffered significant declines in population while the region as a whole is growing in both population and land area.

According to Census data, the 132-square-mile area within the city limits lost 7.1 percent of its population between 1980 and 1992 (U.S. Bureau of the Census 1994). Nonetheless, the larger metro area is considered one of the country's fastest growing places in terms of both residential and commercial development. The prevailing low-density development pattern has contributed to the ineffectiveness of MARTA, the rail and bus transportation system that serves the area. However, it is doubtful that its effectiveness can be improved solely by improving the scope of transit service:

> Expanding mass transit is not likely to remedy the problem. Buses or fixed rail transit can operate efficiently only if at least one end of most journeys is concentrated in a few points of destination. But when both homes and jobs are widely scattered, concentration no longer prevails, even if there are a few major nodes, such as a downtown. Low-density settlements cannot efficiently support mass transit (Downs:8).

Although it includes 1,587 route miles of bus and rail, MARTA still has a low rate of ridership (Brenda English, MARTA). The reason for this may best be explained by the Atlanta Regional Commission's Rail Transit Impact Study, which states that "many areas traversed by [Atlanta's] rail lines are low-density suburbs, with high car ownership" (Stone and Weyandt). This same study also finds that "the Region's population density is fairly low" (Stone and Weyandt). These factors indicate a tendency toward single-occupant automobile use and low rates of mass transit ridership, which is, in fact, the case.

In a more recent document outlining plans for the future of the area, the Atlanta Regional Commission reiterates the ills of MARTA:

> Many residents enjoy the bus and rail service provided by MARTA (the Metropolitan Atlanta Rapid Transit Authority) when they can use it conveniently for traveling to work or to recreational and cultural events. However, many more find MARTA service inconvenient or inaccessible (Atlanta Regional Commission 1995:11).

This report stresses the notion that MARTA's ineffectiveness is the result of low-density development. More specifically, "as the Region develops denser suburban centers, more and more trips will originate and end outside the urban core" (Atlanta Regional Commission 1995:12). Currently, the MARTA system is focused around transporting riders to and from the downtown area. Very few residents live near the transit stations, however, and fewer than 5 percent of the region's jobs are located in downtown Atlanta. In addition to the region's low density, this is also a likely cause of MARTA's ineffectiveness as a transportation system.

While 70 percent of Portland's mass transit riders have cars but prefer to take mass transportation, almost all MARTA patrons use mass transit because they do not have access to an automobile (Tri-Met Station 1996a).

The sentiment that MARTA is inconvenient is shared by the Atlanta Regional Commission and most Atlanta residents, but both groups would like to see MARTA's effectiveness increased. A Vision 2020 survey reveals that "a large majority favor expanding transit systems (bus, rapid transit, and commuter rail) while only a minority would choose building more roads" (Atlanta Regional Commission 1995:11). The survey also reveals that residents are greatly in favor of expanded bicycle lanes, paths and pedestrian walkways (Atlanta Regional Commission 1995:10).

Conclusion

The problems faced by Atlanta have sparked some talk of the possibility of introducing an

urban growth boundary. According to Christopher B. Leinberger, managing director of the Los Angeles-based real estate consulting firm of Robert Charles Lesser and Company:

> Metro Atlanta needs to draw an 'urban growth boundary' as a line in the sand to contain the region's sprawl... That would mean drawing a circle around Atlanta and through the heart of its mushrooming suburbs, similar to lines in Portland, Oregon and Seattle, Washington, as a boundary beyond which dense development would be banned. (Soto 1997:2C)

This boundary would limit expansion over the next 20 years. It would force new development into areas that have already been urbanized, protecting land outside the boundary and increasing the density inside. Many areas of metropolitan Atlanta might then be able to support mass transit. The recognition by officials at MARTA, the Atlanta Regional Commission, and private consultants of the problematic sprawl in Atlanta is a step towards alleviating the situation. The tightening of the Environmental Protection Agency's Clean Air standards will also pressure the city government to act accordingly.

Many officials feel that it is too late for an urban growth boundary in Atlanta because many suburbs far outside the city's center are already established. They argue that while a growth boundary for the Atlanta region might have been an effective tool 10 or 20 years ago, implementing one now would do little to contain sprawl and would be a highly contentious political issue. Instead they favor concepts such as transit-oriented development (TODs), which encourages density in areas adjacent to transit stations and thus promotes mass transit. Plans for high density mixed-use development around transit stations are underway in several Atlanta locations. Officials are hopeful that combining office, retail and residential units with an entertainment complex in close proximity to transit stations will attract a varied clientele for mass transportation.

Although TODs begin to address the problem, these developments alone will not serve to revitalize mass transit in Atlanta. As already mentioned, mass transit does not function effectively when employment and commercial uses are spatially segregated. Even if TODs became the norm at several transit stations, MARTA would still fail to serve the transportation needs of most Atlantans.

Because no singular policy can solve Atlanta's transportation problems, the best hope for the future may be a mixed approach that incorporates an urban growth boundary in conjunction with other measures, such as TODs, that encourage higher density development near transit stations. CP

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Book Review

Understanding Local Economic Development

Understanding Local Economic Development
By Emil E. Malizia
and Edward J. Feser
©1999
298 pages
Center for Urban Policy Research
New Brunswick, NJ

Deborah M. Markley

Understanding Local Economic Development is a successful attempt to couple a wide range of theoretical concepts with the applications sought by economic development professionals. In accomplishing this synthesis, the authors also have produced a coherent and relevant text for economics, planning, geography, and other students engaged in studying the economic development process. *Understanding Local Economic Development* can serve as the core reading material, supplemented by focused journal articles, around which an economic development course can be built. In this dual role, the book makes an important contribution to the economic development literature.

Malizia and Feser, professors of planning at the University of North Carolina at Chapel Hill, open the book with an excellent discussion of four fundamental concepts—power, theory, interests, and mediation—as they pertain to economic development practice. These concepts provide the means for relating theory to practice. This groundwork is particularly important for practitioners who may otherwise find the discussions of theory to lack relevance.

The main body of the book is devoted to a review of theories related to economic development. The breadth of theories covered, from neoclassical to flexible production, provides a range of perspectives on the economic development process that should engender discussion by practitioners and students alike. This review covers theories that provide an historical perspective on economic development thought, as well as those that assume greater importance in our current global economy. In addition, the authors use two tools quite effectively in their discussion of alternative theories. First, following a summary of each theory's tenets, the authors present applications of the theory, e.g., growth pole theory applied to the Columbus, Ohio metropolitan area. While these applications are of interest to both students and practitioners, they are particularly useful to practitioners. The applications explore what each theory implies for the role of economic development and the strategies each theory suggests. Second, more in-depth (and frequently more quantitative) discussions of each theory are included in an appendix, rather than in the text. This technique makes the chapter more accessible to economic development professionals while providing students with the greater level of detail that they require. The result is a text that flows smoothly for both audiences.

The book concludes with a discussion of the distinctions between economic growth and

Deborah M. Markley *is principal of Policy Research Group, specializing in economic development research and policy analysis. Dr. Markley is also chair of the Rural Policy Research Institute's Rural Equity Capital Initiative.*

economic development. This chapter provides a conceptual framework to help practitioners relate theory to a more complete understanding of the competitiveness of a local economy. The authors effectively demonstrate how "a good understanding of theory will enhance the economic developer's creativity and ability to design more effective solutions to economic problems" (p. 257).

With this book, Malizia and Feser have created a tool for both economic development professionals and students to use in understanding the theory and practice of local economic development. While students will find this text readily accessible, the test of its effectiveness will be acceptance and use by economic development practitioners. CP

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